

**THE “ART OF BUILDING” (*BAUKUNST*) OF  
MIES VAN DER ROHE**

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Presented to  
The Academic Faculty

By

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**THE “ART OF BUILDING” (*BAUKUNST*) OF  
MIES VAN DER ROHE**

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*To my husband, Woosik Moon and  
my son, Heeyoon Mike Moon*

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## SUMMARY

This dissertation attempts to interpret the written and spoken statements of Ludwig Mies van der Rohe (1886-1969) that pertain to his lifelong theory of “*Baukunst*,” or “the art of building” in terms of tectonics. In order to use the concept “tectonics” as a criterion according to which one can comprehend Mies’ words and works, this study attempted to define “tectonics” in a more general sense by collecting existing definitions and categorizing them. The result of this endeavor showed that the concept does not signify a supportive structure but “the art of framing construction,” in which linear elements are put together with joints and clad or infilled with lightweight material. Mies, calling the ideal of tectonic architecture “the art of building,” attempted to realize his art of building as an actual construct. In his building art, the framing construction was not a concept contrary to that of space but rather one incorporated into space, as evidenced in correlation between Mies’ evolving framing forms for spatial openness to nature and verbal description of each built space. It is proposed that Mies, during his lifelong career, experienced two periods of critical awareness through which he realized an ideal type of tectonic buildings: awareness of the “open plan” and then that of “clear space.” After the former occurred in 1926, he focused on the creation of inner spatial openness; after the latter, which this study argues occurred around 1930, when he met Karlfried Graf Dürckheim (1896-1988), who had been absorbed in Lao-tzu’s philosophy, Mies intended to show that his architectural concern was beyond physical construction by

employing the “changing” potential of Lao-tzu’s void and by creating the “almost nothing” form of minimal framing architecture. Mies finally achieved a tectonically integrated body of a building that contained extroverted and undetermined space, which he referred to as clear space, or generally called Mies’ universal space, through his lifelong pursuit for the accomplishment of his own art of building, which this dissertation terms “Miesian tectonics.”

# CHAPTER 1

## INTRODUCTION

### 1.1 The Background

This dissertation attempts to interpret the written and spoken statements of Ludwig Mies van der Rohe (1886-1969) that pertains to his lifelong theory “*Baukunst*,” or “the art of building,” in terms of tectonics. Within the scope of architectural theories, no consensus of opinion exists on the concept of tectonics although its adjective form, “tectonic,” basically signifies “of or relating to construction or building.”<sup>1</sup> While vaguely agreeing that tectonics is related to construction, architectural theorists have formed their own definitions. In order to suggest a logical interpretation of a certain building, critics have frequently reduced the meaning of tectonics to “structural form” by treating tectonics as similar to the visual expression of dynamic forces.

This general tendency, whereby critics regard supporting forms as the main issue in tectonic debates, is maintained in criticism of Mies’ architecture because he himself declared that what he tried to do in architecture was to develop a clear structure.<sup>2</sup> In cases in which critics have not been able to fully analyze Mies’ buildings in terms of a visually supportive system, they have easily concluded that Mies’ concept of structure is ambiguous and his approach is clumsily untectonic. For example, Wolf Tegethoff, used

“untectonic nature of the glass”<sup>3</sup> to describe the glassy materiality of such structures, as reflective glass doesn’t clearly expose a structure. Kenneth Frampton also described the column of the Barcelona Pavilion, which is connected to the flatly beamless finishing, as “atectonic,”<sup>4</sup> inasmuch as the expression of the structural frame is suppressed within it.

In the existing tectonic assessment of Mies, one finds problems in both the definition of Mies’ structure and that of tectonics. Mies’ use of the term structure did not signify an analytically supportive system, but an objectively general whole<sup>5</sup> system encompassing new details as well as an industrialized process based on the bone structures<sup>6</sup> of concrete or steel. Since Mies’ structure had universal character,<sup>7</sup> he responded to the copying problem positively, saying that copying is “the reason we are working.”<sup>8</sup> On the other hand, in order to identify the term tectonics comprehensively, this study collects existing definitions of the term and categorizes them. The term “tectonics” within the architectural area is closely related to the following terms in the three categories below:

1. *Techne*, technique, and technology
2. Construction and structure
3. Stereotomics

The definition of tectonics will be stated in terms of its etymology in the first category, in terms of building system in the second, and in terms of Gottfried Semper’s material construct in the third. This categorization is useful, as one can understand any critic who raises the issue of tectonics and interpret its meaning in each context of discussion by comparing tectonics with the terms above.

The term tectonics, etymologically preserving not only the rational aspect of technology but also the poetic aspect of *techne*, signifies the *techne* of carpentry.<sup>9</sup> While *techne* indicates the art or the craft in all fields, tectonics implies the art of carpentry, that is, the art of construction<sup>10</sup> in architecture because architectural construction is the main purpose of carpentry. From a materially constructional point of view, in contrast to a massively constructional, or stereotomic type, in which solid mass is piled up, carpentry represents a linearly constructional, tectonic type in which lightweight framing elements are put together with joints. On the basis of the notion of tectonics common in these three categories, which Chapter 2 discussed, this study defines tectonics as “the art of framing construction,” in which linear elements are put together with joints and clad or infilled with lightweight material.

In contrast to the meanings of both supportive structure and practical construction, tectonics comprises a spatial aspect: spatial issues lie within the boundary of tectonics, which is not a concept contrary to that of space in one category of the definitions of tectonics. In architecture, space basically represents “built space,”<sup>11</sup> and the effect of space results from the level of tectonics as an art, and the intention of construction is to create spatial effects. From this point of view, Carles Vallhonrat regarded a constructional stage in which materials appear as the surfaces that bound space<sup>12</sup> as the final level of tectonics. Semper also focused on the surface effect of space, calling it “wall dressings”<sup>13</sup> that veil the inner framing structure but reveal “a high work of art.”<sup>14</sup> (Further details are discussed in Chapter 2.2, “Construction, Structure, and Tectonics.”) In this view, tectonics implies the artistic level of spatial construction beyond the practical level of a material system. Similarly, Mies argued that the objective of his art of

building was the spatial expression executed by his spiritual decisions<sup>15</sup> beyond technical or economical satisfaction. He wrote that “building, where it became great, was almost always indebted to construction, and construction was almost always the conveyor of its spatial form.”<sup>16</sup> In order to reach the level of his art of building, architects should have an innovative spatial vision beyond material construction.

Etymologically, Mies’ term “the art of building” or “Baukunst” corresponds to tectonics, which is the art of framing construction, because he accomplished his art of building in the form of bone structures. Arguing that “construction has to be the basis of the building art,”<sup>17</sup> Mies was not the only person who used the term *Baukunst*.<sup>18</sup> However, after 1923, when he publicly defined his own theory as the art of building, it was his lifelong<sup>19</sup> pursuit to reveal his concerns on tectonics based on industrialized construction. His art of building does not represent general architecture, but has been concretely embodied as the spatial form of an open plan<sup>20</sup> through his progressive recognition of a new architectural essence.

Mies defined tectonic, or architectonic, several times<sup>21</sup> as constructive appearance exposing the skeleton structure. For Mies, the meaning of tectonic did not belong to the boundary of supportive structure but was connected to glassy materiality that permitted the unambiguously constructed appearance of a skeletal structure. Mies regarded the glass skin as “tectonic means”<sup>22</sup> and the “instruments of a new art of building.”<sup>23</sup> Accordingly, his building art includes the new<sup>24</sup> area of full glazed skins, whose scope covers his term tectonic more comprehensively. Throughout his career, the way in which Mies applied his theory of the art of building to an actual construct underwent two critical aspects of awareness: the awareness of “open plan”<sup>25</sup> and that of “clear space.”<sup>26</sup>



This study posits that Mies' various open plans were the outgrowth of his awareness in 1926, which he publicly declared as a year of "great realization or awareness."<sup>27</sup> From 1925 to 1927, Mies, as the artistic director of the Weissenhof Housing Colony in Stuttgart, uncovered pioneering architecture including Le Corbusier's open plan. In July, 1926, the Stuttgart City Council accepted and approved<sup>28</sup> building plans for the Exhibition on Housing. For this exhibition, Mies built the Weissenhof Apartment House, the first steel-skeletal or tectonic structure with lightweight partition walls for an open plan. Through his personal experiences with not only his first skeletal construction but also Le Corbusier's house, the latter demonstrating a more active spatial openness, Mies seemed to realize that he needed to focus more deliberately on an open plan in order to activate his principle of the art of building as "actual building art."<sup>29</sup> At the Stuttgart Werkbund Exhibition in 1927, Mies, along with Lilly Reich, designed the Glass Room, in which he created the hall following an idea of his open plan. The hall was loosely divided into three areas containing working, living, and dining areas partly with freestanding glass walls.

Chapter 3.2 will discuss the change of Mies' concern, which his first awareness resulted in. On the basis of the observation of Mies' concerns before 1926 and after 1926, this study finds that the awareness of 1926 was the primary motivation for Mies' material concern transforming from the outer appearance of structural exposition on the basis of the concept of skin and bone to the inner effect of space composed of material free-standing walls, which became a critical element of the dynamic spatial effect of his open plans. After recognizing a connection between framing architecture and spatial effect through the actual construction of the Weissenhof Apartment House, Mies approached

the issue of the glass skin in two ways of exterior appearance and interior space. In 1933, he discussed the necessity of the glass skin in terms of not only “unambiguous constructive appearance” but also “spatial composition”<sup>30</sup> that allowed open views towards the landscape. One experiences the spatially dynamic forces of Mies’ open plan that originate between the inner effect of the compositional arrangement of material freestanding walls and the outer effect of the bright landscape beyond full glazed walls.

The material freestanding walls in the open plans of the Barcelona Pavilion and the Tugendhat House provided the foundations on which Mies established his own identity free from the influences of the abstract composition of Frank Lloyd Wright and the free plan of Le Corbusier. Mies’ material approach, which conformed to new trends toward a sleek finish and material minimalism, distinguished him from the other modern architectural masters. However, his search for an identity that reflected a new art of building had not yet been accomplished. Thus, Mies attempted to establish a new proto-form that not only physically comprised his skin and bone structures and his material freestanding inner walls but also drew the “changing”<sup>31</sup> nature outside of glazed walls into a refined single body of a building. Mies, believing in the objectivity of industrialized architecture, pursued “clear construction”<sup>32</sup> containing “clear, uncluttered spaces”<sup>33</sup> that is, Mies’ universal space, which took advantage of American pioneering constructional technology. In order to suggest something beyond the material level of technological construction, he searched, at the same time, for a way in which a physical construct could be experienced as changing and living clear space.

This dissertation proposes that Mies’ clear space, established on a technological construction, simultaneously reflects the void of *Lao-tzu*,<sup>34</sup> the ancient Eastern

philosopher. It is suggested that Mies' contact with the idea of Lao-tzu's void led to his second awareness in which he recognized the surface inside of the full, high glazed walls between frames as potential space extending to the changing nature outside. Although Mies did not publicly mention a relationship between his architecture and Lao-tzu's philosophy, his clear space strongly evokes Far Eastern sentiments that value the void over the solid.

This study posits that Mies may have been aware of Lao-tzu's philosophy around 1930, when he became the director of the Bauhaus in Dessau, where Hannes Meyer, the previous director, invited Karlfried Graf Dürckheim (1896-1988), a lecturer in psychology.<sup>35</sup> Werner Blaser stated that Mies had "a very special relationship with the writings"<sup>36</sup> by Dürckheim. At the age of twenty-four (1920), Dürckheim had first come into contact with Eastern philosophy when he read *Tao Teh King* of Lao-tzu and who later resided in Japan, from 1937 to 1947, as a German diplomat, psychologist, and Zen master. Recalling a situation in which Dürckheim had found *Tao The King* in the workshop of painter Willi Geiger, Dürckheim referred to the moment when he read Chapter 11 as a "great experience of Being."<sup>37</sup> The following is Chapter 11 in its entirety:

Thirty spokes converge upon a single hub;  
It is on the hole in the center that the use of the car hinges.

We make a vessel from a lump of clay;  
It is the empty space within the vessel that makes it useful.

We make doors and windows for a room;  
But it is these empty spaces that make the room livable.

Thus while the tangible has advantages;  
It is the intangible that makes it useful.<sup>38</sup>

The words in the chapter eleven of *Tao Teh King* appeared to have shocked Dürckheim, who lively described his experience as follows: “And suddenly it happened! Lightning went through me. The veil was torn asunder, I was awake! I had just experienced ‘It.’ . . . two poles: one that was the immediately visible, and the other an invisible which was the essence of that which I was seeing. I truly saw Being.”<sup>39</sup> Dürckheim considered this first contact with *Tao Teh King* as “the most decisive one”<sup>40</sup> in his life. Thus, he may have introduced the chapter eleven to Mies and other Bauhaus people whenever he expounded on the philosophy of Lao-tzu.

The chapter eleven of *Tao Teh King* influenced not only psychologist Dürckheim but also architectural theorist Cornelis van de Ven, who regarded the verses of chapter eleven as “the first example of an aesthetics of space” (1978).<sup>41</sup> After all, in Western architecture, it was not until the late nineteenth century that architectural theorists recognized the concept of space as essential to architectural creativity. In the first couplet, van de Ven referred to the assemblage of spokes constituting an entire wheel as a “tectonic form,” while in the second couplet, he related the empty space created by hollowing out a lump of clay to “stereotomic form”<sup>42</sup>. He interpreted Lao-tzu’s different types of space by applying Semper’s two materially constructional types. In the third couplet, van de Ven clearly showed his admiration for Lao-tzu’s emphasis on a “continuity of space” between the inside and the outside because the empty space confined by the doors and windows of the “separating wall” is the object of “fundamental architectural concern.” He claimed that Lao-tzu created a “conscious idea of space” by conceiving three kinds of built space in this poem and thus revived Lao-tzu as a “modern thinker.”<sup>43</sup>

On the basis of the two examples of Dürckheim and van de Ven, it is proposed that the chapter eleven of *Tao Teh King* became the conduit through which Lao-tzu's ideas as a spatial concept reached Mies. Whereas psychologist Dürckheim became aware of the existence of an invisible but essential being through chapter eleven, architect Mies might have been more intrinsically aware of the critical existence of "empty spaces that make the room livable" in his art of building. After his awareness of 1926, Mies experimented between 1927 and 1930 on his open plans in three ways, generally referred to as "flowing space," "dynamic space," and "clear space." (These concepts are defined in Chapter 3.2: Two Periods of Critical Awareness.) One should note that after 1930, when Mies may have come into contact with Lao-tzu's philosophy through Dürckheim, he focused more and more on maximally undetermined clear space in his open plan (see Table 3.1). Although Mies fully succeeded in establishing his identity of new space in the Barcelona Pavilion and the Tugendhat House around 1930, this study finds that his spatial concern moved from dynamic space to clear space, in which Mies minimized fixed material configuration, increased undetermined empty space, and maximized transparent walls open to the outside. In 1943, he described his open plan enclosed by four-sided glazing as "a defining rather than a confining space."<sup>44</sup> Although the external glazed skin constructionally, according to Mies, confines inner space, the space is characteristically defined beyond functional protection from the environment outside. On the level of the "art of framing" construction—or tectonics—Mies intended to create an innovative and meaningful space beyond physically framing construction by introducing the "changing" nature outside as a bright and living potential element in inner space.

(Further details about the meaning of the changing nature are described in Chapter 6.1: “The Background.”)

It is not a surprise that Mies knew of *Tao Teh King* of Lao-tzu by at least 1930, as a translation of *Tao The King* had first been published in 1868 in English by John Chalmers and in 1870 in German by Victor von Strauss. Since 1868, the book has been translated with over 100 different versions in English alone. In the nineteenth and twentieth centuries, Europeans came into contact with Lao-tzu’s philosophy through various routes. For example, Martin Heidegger (1889-1976), who was a contemporary of Mies, was acquainted with Taoism before 1930<sup>45</sup> and attempted to translate *Tao Teh King* into German in 1946. (The translation, however, was never completed). In Rudolf Eisler’s *Eislers Handwörterbuch der Philosophie* of 1922 (*Eisler’s Concise Dictionary of Philosophy*),<sup>46</sup> which Mies possessed, the meaning of “Tao” was defined and Lao-tzu’s *Tao Teh King* was concisely introduced.

Besides *Eisler’s Concise Dictionary of Philosophy*, Mies possessed several books<sup>47</sup> describing Lao-tzu’s philosophy: F. S. C. Northrop’s *The Meeting of East and West* (1946), Albert Schweitzer’s *The Philosophy of Civilization* (1949), Amos Ih Tiao Chang’s *The Existence of Intangible Content in Architectonic Form Based upon the Practicality of Laotzu’s Philosophy* (1956), and Lao Tzu’s *Tao Teh King* (1958). Besides the books above, Mies also possessed Tetsuro Yoshida’s *Japanische Architektur* (1952), which illustrated images implicitly emphasizing voids in traditional Japanese buildings.<sup>48</sup> Mies’ collection is said to be incomplete because his family members had made selections from it before the Special Collections Department of UIC purchased it in 1969-

70. Therefore, Mies might have read more books related to Lao-tzu's philosophy earlier published than those referred to here.

Chang's *The Existence of Intangible Content* (1956) is an architectural theory book of essays that apply Lao-tzu's philosophy to architectural space. Providing other evidence that Mies read Lao-tzu's Book, Werner Blaser wrote "Concerning the books that surrounded and inspired him and influenced his thoughts: in his Chicago apartment he always had books by Augustine and Laotse at hand . . ."<sup>49</sup> In his book *West meets East-- Mies van der Rohe* (1996), Blaser illustrated the spiritual and structural resemblance between the modern works of Mies van der Rohe and the ancient buildings of the Far East. Instead of adopting a broad approach that situated Mies' work at its center to study the ramification of West meets East, as the concepts of West and East are too broad and vague, this dissertation will attempt to provide a more persuasive analysis by placing in parallel the works and the spoken and written statements of Mies van der Rohe with detailed phrases in Lao-tzu's *Tao Teh King* (1958), which Mies actually possessed.<sup>50</sup>

For Mies, the concepts of both clear space and structure in his work had to be based on a "philosophical idea" in which the physical level of the structure was intended to be experienced as an intangible whole; he asserted that structure should be "the whole, from top to bottom,"<sup>51</sup> as an integrated idea rather than a fragmentary expressionism of supportive dynamics. This dissertation will attempt to reveal the potential existence of his clear space and the forces that create the whole rather than merely focusing on the display of his tangible framing structure itself. To provide evidence that his intentions in his art of building were an even more comprehensive in scope, it will refer to Mies' statements

that considered material requirements and spiritual space simultaneously. Thus, the approach of this dissertation is considerably different from the existing bases of tectonic or structural criticism of Mies' art of building, which related to the visual forms in his works based on either structural organization or aesthetic composition.

It is to be concluded that Mies' identity as a modern master lies in his achievement of a new proto-form of tectonics, an art of building that progressed towards precise relationship of structure and space. Initially, he experimented on accomplishing his tectonics with structurally framing forms, and later these steadily developed towards open plans in terms of very simple volumes, which this dissertation terms as "clear space." Having accomplished his own typical framing form of clear space, Mies repeated the same principle of his art of building rather than developing new types, which shows that he was confident<sup>52</sup> of his contribution to the art of framing construction, or tectonics, and thus maintained this principle so that it would "clarify it in all details"<sup>53</sup> and "lay a basis for future development"<sup>54</sup> within the constructional limits of his time. Accordingly, Mies' art of building is focal rather than divergent although it is concerned with skin and bone structures as exterior frames, material freestanding walls as inner elements, and potential clear space as the ultimate object of his art of building. By conceiving a notion of skin and bone structures, Mies created a new framework for architecture, but it did not yet include the idea of space. After his first awareness of an open plan, Mies realized dynamic space by creating harmony between inner material freestanding walls and space open to the outside. His dynamic space was materially spatial; in other words, the solidly material effect and the voidly spatial effect dynamically matched in strength. On the other hand, Mies intended to create maximally extroverted and void space inside his clear



space by designing a minimum number of freestanding walls, a minimal form of structural frames, and maximum openness of glazed walls. Mies established potential clear space, for which he intended minimal tectonics to be viewed as “almost nothing.” (This will be further discussed in relationship with Lao-tzu’s voids in Chapter 6.2)

## **1.2 The Objective, the Methodology, and the Organization**

The objective of this dissertation is to interpret the written and spoken statements of Ludwig Mies van der Rohe (1886-1969) on his theory, the art of building in terms of tectonics by placing his words in parallel with his works. Kenneth Frampton, illuminating Mies’ tectonics on the basis of Western architectural history, characterized Mies’ concerns as divergent.<sup>55</sup> Edward R. Ford divided Mies’ architecture into two stages that he referred to as European Mies and American Mies.<sup>56</sup> In contrast to Frampton and Ford, who considered Mies’ pursuit towards ideal architecture multi-focusing, this study attempts to substantiate that Mies, based on his publicly proclaimed art of building in 1923, has maintained the focal point of view and eventually accomplished an ideal type of new tectonics.

This study proposes that, in the process of developing his art of building, Mies incorporated the concept of Lao-tzu’s void in his architecture so that his tectonics would be meaningful from a philosophical viewpoint as well as satisfactory from a physically constructional standpoint. This approach differs from that of Fritz Neumeyer, who insisted that Mies’ work possessed spiritual determinants in terms of Western philosophy.

(For further details, see Chapter 6.4: “Clear Space.”) This dissertation presents an original and persuasive interpretation of Mies’ concept of clear space in terms of Lao-tzu’s concept of voids.

The organization of this dissertation is as follows: Chapter 1 introduces the background of this study. Then, before presenting research on the connection between tectonics and Mies’ art of building as a theory, Chapter 2 presents existing definitions of tectonics and categorizes them. Chapter 3 then analyzes Mies’ art of building through his written and spoken statements and illuminates how Mies’ art of building developed from a conceptual idea to a tectonic construct concurrent with major events in his career. Chapter 3 shows how Mies’ art of building was finally accomplished in the form of clear space by discussing the two periods of critical awareness; it then introduces three stages of his career in which Mies’ concerns about his art of building evolve from the issue of material constructs, or “skin and bone structures,” to that of his open plan composed of “material freestanding walls,” and finally to that of spiritual space in the form of clear space. Chapters 4, 5, and 6 analyze the characteristics of each of these stages and substantiate the basis of discussion by relating it to historical events in Mies’ life. Chapter 7, by applying the three categories of the definitions of tectonics stated in Chapter 2 to Mies’ major buildings, examines the relationship between the concept of Mies’ art of building and that of tectonics. Chapter 8 concludes this dissertation.

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- <sup>1</sup> *The Concise Oxford Dictionary of Current English*, Ninth Edition (1995)
- <sup>2</sup> Mies van der Rohe, Interview (1955) by John Peter, *The Oral History of Modern Architecture: Interviews with the Greatest Architects of the Twentieth Century* (New York: Harry N. Abrams, 1994), 161.
- <sup>3</sup> Wolf Tegethoff, "From Obscurity to Maturity: Mies van der Rohe's Breakthrough to Modernism," *Mies van der Rohe*, in *Critical Essays*, ed. Franz Schulze (New York: the Museum of Modern Art, 1989), 43.
- <sup>4</sup> Kenneth Frampton, *Studies in Tectonic Culture: the Poetics of Construction in Nineteenth and Twentieth Century Architecture* (Cambridge: The MIT Press, 1995), 177.
- <sup>5</sup> Mies van der Rohe, in Peter Carter, "Mies van der Rohe: An Appreciation on the Occasion, This Month, of His 75th Birthday," *Architectural Design* 31, no.3 (Mar. 1961): 97.
- <sup>6</sup> Mies van der Rohe, "Office Building," *G*, no.1 (July 1923): 3. Republished by Fritz Neumeyer, trans. Mark Jarzombek (Cambridge: The MIT Press, 1991), 241. Mies includes his office building (the project "office building" of 1923) in "skin and bone structures," the materials of which are "concrete, iron [steel], glass."
- <sup>7</sup> Mies van der Rohe, Letter to Messrs. (1960). Re-quoted in Phyllis Lambert, "Space and structure," *Mies in America* (New York: Whitney Museum of American Art, 2001), 391.
- <sup>8</sup> Mies van der Rohe, interview (1955) by John Peter, 160.
- <sup>9</sup> Demetri Porphyrios, "From techne to Tectonics," in *What is Architecture?*, ed. Andrew Ballantyne (London, New York: Routledge, 2002), 134-135.
- <sup>10</sup> Kenneth Frampton, 3.
- <sup>11</sup> Adrian Forty, 265.
- <sup>12</sup> Carlos Valhonrat, "Tectonic Considered, Between the Presence and the Abstract of Artifice," *Perspecta* 24 (1988): 123.
- <sup>13</sup> Gottfried Semper, *The Four Elements of Architecture and Other Writings*, trans. Harry F. Mallgrave (Cambridge: Cambridge University Press, 1989), 254.
- <sup>14</sup> Op cit. 258.
- <sup>15</sup> Mies van der Rohe, "The Preconditions of Architectural Work" (Lecture in 1928). Published by Fritz Neumeyer, *The Artless Word: Mies van der Rohe on the Building Art*, translated by Mark Jarzombek (Cambridge: The MIT Press, 1991), 299. See Chapter 6.1. From 1924, Mies used both terms such as "spatial" and "spiritual" (or spiritually) connecting the one to the other in the boundary of his art of building.
- <sup>16</sup> Mies van der Rohe, "Lecture" (Unpublished manuscript, Unknown date). Published by Fritz Neumeyer, 325.
- <sup>17</sup> Mies van der Rohe, Notes to Lectures, undated (around 1950). Published by Fritz Neumeyer, 327.
- <sup>18</sup> Kenneth Frampton, "Bötticher, Semper and the Tectonic: Core Form and Art Form," in Andrew Ballantyne, 150. Kenneth Frampton, explaining the relationship between tectonic legacy and *Baukunst*, lists the names of writers whose book titles include *Baukunst*: Hermann Muthesius' *Stilarchitektur und Baukunst* (1902), Karl Scheffler's *Moderne Baukunst* (1907), and Otto Wagner's *Die Baukunst unserer Zeit* (1914).

- <sup>19</sup> In 1964, Mies still uses *Baukunst* rather than architecture as a term indicating his buildings: “We use in German the word *Baukunst*, that are two words, the “building” and the “art.” The art is the refinement of building. That is what I express with *Baukunst*”: Mies van der Rohe, Interview (1964) by John Peter, 164.  
In 1958, Mies also says that, “We are only interested in building. We would rather than “architecture” use the word “building” and the best results would belong to the “art of building”: Mies van der Rohe, Statements collected by Christian Norberg-Schulz, “Talks with Mies van der Rohe,” *L’Architecture d’aujourd’hui* 79 (September 1958):100
- <sup>20</sup> Mies van der Rohe, “Museum for a Small City,” *Architectural Forum* 78, no.5 (1943): 84. In the project of “Museum for a Small City,” Mies characterizes the museum as “the open plan,” which he describes as a space “conceived as one large area, allows every flexibility in use.”
- <sup>21</sup> Mies used the term “tectonic,” a case of which was found in his manuscripts of 1924 and 1933: The first case is in Mies van der Rohe’s “Lecture”: An unpublished manuscript of 1924, published by Fritz Neumeyer, 250. The second case is in Mies van der Rohe’s “What Would Concrete, What Would Steel Be without Mirror Glass?”: a Manuscript of 1933. Published by Fritz Neumeyer, 314.
- <sup>22</sup> Ibid.
- <sup>23</sup> Ibid.
- <sup>24</sup> For Mies, “new,” “our time,” “present-day,” or “nowadays” represents the meaning “modern.” Between 1925 and 1929, Mies actually built three brick houses, but these buildings are not included in the boundary of his new art of building, which has a relationship with a skin and bone construction made of the combination of glass and steel or glass and concrete. Mies says, “We are very familiar with the charm of stones and brick. But that does not prevent us nowadays from taking glass and concrete, glass and metal, into consideration as fully equivalent materials. In many cases, these materials correspond best to present-day purposes: Mies van der Rohe, “Building Art and the Will of the Epoch,” manuscript (1924). Republished by Fritz Neumeyer, 247.
- <sup>25</sup> Mies van der Rohe, “Museum for a Small City,” *Architectural Forum* 78, no.5 (1943): 84. Mies characterizes this museum as “the open plan,” which he explains as a space “conceived as one large area, allows every flexibility in use.” He describes his open plan as a single extensive space loosely zoned with minimum partitions and openly connected to the outside through maximum windows, replacing the existing closed form of individually compartmental rooms.
- <sup>26</sup> Mies did not use the general term “universal space” to indicate that which he created later in his career in America but called it an “open room,” “open plan,” or “free plan.” Earlier in 1930, he referred to “clear spaces” :Mies van der Rohe, “The Adam Building” (manuscript of 1930), Published by Fritz Neumeyer, 305. The clear spaces indicate not only the undivided volume of interior space but also the undifferentiated expanse between interior and exterior space. This dissertation refers to a glazed single-volume of Mies’ space as clear space.
- <sup>27</sup> Mies van der Rohe, “No Dogma,” *Interbuild* 6 (June 1959): 10.
- <sup>28</sup> Ibid.
- <sup>29</sup> Mies van der Rohe, “Introductory Remarks to the Special Issue, ‘Werkbundaustellung:

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- Die Wohnung',” *Die Form* 2, no.9 (1927): 257. Republished by Fritz Neumeyer, 261.
- <sup>30</sup> Mies van der Rohe, “What Would Concrete, What Would Steel Be without Mirror Glass?”, Manuscript (1933). Published by Fritz Neumeyer, 314.
- <sup>31</sup> Mies van der Rohe, “Museum for a Small City,” *Architectural Forum* 78, no.5 (1943): 84. For Mies’ statements, see Appendix A.4.
- <sup>32</sup> Mies explains as follows: “The free plan and a clear structure can not be kept apart. A clear structure is the basis for the free plan”: Mies van der Rohe, Statements collected by Christian Norberg-Schulz, “Talks with Mies van der Rohe,” *L’Architecture d’aujourd’hui* 79 (September 1958):100.
- <sup>33</sup> Mies van der Rohe, “The Adam Building” (manuscript of 1930), Published by Fritz Neumeyer, 305. Kenneth Frampton describes Mies’ clear space as “an unobstructed clear-span, single-story, unitary volume” that is “enclosed by a plate-glass skin”: Kenneth Frampton, “Mies van der Rohe and the Monumentalization of Technique 1933-67,” *Modern Architecture* (London: Thames and Hudson, 1980), 235.
- <sup>34</sup> *Lao* (老) means old or ancient, and *tsu* (子) is a common term of respect, like Sir or Master. *Tzu* is sometimes replaced by such words having similar pronunciations as tsu, tse, tsze, tz, ts, and tzyy.
- <sup>35</sup> Hans Maria Wingler illustrated notes on the psychology lectures of Karlfried Graf Dürckheim from 1930-31. Hans Maria Wingler, *The Bauhaus: Weimar, Dessau, Berlin, Chicago*, translated by Wolfgang Jabs and Basil Gilbert, edited by Joseph Stein (Cambridge: MIT Press, 1969), 159.
- <sup>36</sup> Werner Blaser, *Mies van der Rohe-Farnsworth House* (Basel: Birkhäuser, 1999), 80.
- <sup>37</sup> Alphonse Goettmann, *Dialogue on the Path of Initiation*, translated by Theodore and Rebecca Nottingham (New York: Globe Press Books, 1984), 9.
- <sup>38</sup> Lao Tzu, *Tao Teh Ching*, translated by J.C.H. Wu (New York: St. John University, 1961), chapter 11.
- <sup>39</sup> Alphonse Goettmann, 10.
- <sup>40</sup> Alphonse Goettmann, 11.
- <sup>41</sup> Cornelis van de Ven, *Space in Architecture: the Evolution of a New Idea in the Theory and History of the Modern Movements* (Amsterdam: Van Gorcum Assen, 1978), 8.
- <sup>42</sup> Cornelis van de Ven, 5.
- <sup>43</sup> Cornelis van de Ven, 8.
- <sup>44</sup> Mies van der Rohe, “Museum for a Small City,” *Architectural Forum* 78, no.5 (1943): 84.
- <sup>45</sup> *Heidegger and Asian Thought*, edited by Graham Parkes (Honolulu: University of Hawaii Press, 1987), 52.
- <sup>46</sup> Rudolf Eisler, *Eislers Handwörterbuch der Philosophie* (Berlin: E.S. Mittler & Sohn, 1922), 653.
- <sup>47</sup> These books are in Mies’ personal library in the Ludwig Mies van der Rohe Collection of the University of Illinois in Chicago.
- <sup>48</sup> When Graeme Shankland, referring to Mies’ design intention of open-planned houses, asked, “you would like to change things round occasionally, as the Japanese do in their houses?,” Mies answered, “yes, something like that”: Mies van der Rohe, Interview for the BBC program (1959), Republished by Peter Carter, *Mies van der Rohe at Work* (London: Phaidon Press, 1999), 181.

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<sup>49</sup> Werner Blaser, *Mies van der Rohe-Farnsworth House* (Basel: Birkhäuser, 1999), 80.

<sup>50</sup> I used as citations Archie J. Bahm's and Amos Ih Tiao Chang' interpretations, both books of which Mies possessed, except cases in which their interpretation did not make general sense of *Tao Teh King*.

<sup>51</sup> Peter Carter, "Mies van der Rohe: An Appreciation on the Occasion, This Month, of His 75th Birthday," *Architectural Design* 31, no.3 (Mar. 1961): 97.

<sup>52</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100. See Appendix A.4.

<sup>53</sup> Mies van der Rohe, in Christian Norberg-Schulz, 338-339.

<sup>54</sup> Ibid.

<sup>55</sup> Kenneth Frampton, 159.

<sup>56</sup> Edward R. Ford, *The Detail of Modern Architecture* (Cambridge: MIT Press, 1990), 261.

## CHAPTER 2

### CONCEPTS OF TECTONICS IN ARCHITECTURE

#### 2.1 Techné, Technique, Technology, and Tectonics

This chapter illuminates the concept of tectonics in the light of etymology by comparing it with such terms as *techne*, technique, and technology. According to Demetri Porphyrrios, the Greeks used the same term *techne* for both art and craft, as they did not distinguish artists from craftsmen, generally calling them *technites*. In Greek, *techne* does not simply refer to practical dexterity on the basis of execution but implies a kind of knowledge; it signifies man's intelligence as reflected in the construction of products in carpentry, sculpture, music, poetry, medicine, agriculture, and architecture. Porphyrrios states that *techne* is frequently used as a concept opposite to nature (*physis*). The organized knowledge for production can be formulated in order to transform raw material into a useful utensil, which reveals the way in which it was made<sup>1</sup> in contrast to natural things.

Martin Heidegger, going beyond the superficial meaning of *techne*, most authentically defined the Greek term *techne*:

However usual and convincing the reference may be to the Greek practice of naming craft and art by the same name, *techne*, it nevertheless remains oblique

and superficial; for *techne* signifies neither craft nor art, and not at all the technical in our present-day sense; it never means a kind of practical performance.

The word *techne* denotes rather a mode of knowing.<sup>2</sup>

According to Heidegger, to know implies to apprehend what is present, so *techne* as knowledge “brings forth present beings as such beings out of concealedness and specifically into the unconcealedness of their appearance.”<sup>3</sup> Therefore, Heidegger argued that *techne* did not signify an action of making but a mode of knowing. From his point of view, building is not an art or a technique of construction but dwelling. As the German word of building *Bauen* signifies “to stay in a place,”<sup>4</sup> the objective of building is to dwell. By letting dwell and making a space a place based on a site, in which four primal beings--earth, sky, divinities and mortals--belong together in one, building accomplishes its nature. He called the oneness of the four the fourfold. A building can gather the fourfold and bring the fourfold into a thing, that is, an existential being. Heidegger, arguing that letting dwell rather than construction is the nature of building, explained that the essence of architectural tectonics originated from *techne*, which signifies making something appear:

The Greeks conceive *techne*, producing, in terms of letting appear. *Techne* thus conceived has been concealed in the tectonics of architecture since ancient times. Of late it still remains concealed, and more resolutely, in the technology of power machinery. But the nature of the erecting of buildings cannot be understood adequately in terms either of architecture or of engineering construction, nor in terms of a mere combination of the two.<sup>5</sup>

For Heidegger, *techne* meant the poetic revealing of things on the basis of his



accounts below:

*Techne* belongs to bringing-forth, to *poiesis*; it is something poetic. . . . Thus what is decisive in *techne* does not lie at all in making and manipulating nor in the using of means, but in the afore-mentioned revealing.<sup>6</sup>

Christian Norberg-Schulz, who borrowed the meaning of *techne* from Heidegger, explained *techne* using a phenomenological approach in which the ontological purpose of a building (Figure 2.1) is to make a site a place, that is, to potentially uncover the meanings present in a given environment.<sup>7</sup> According to Norberg-Schulz, a building embodies its meaning by standing forth in the open as a concrete identity. “By standing there”<sup>8</sup> (Norberg-Schulz emphasized the importance of the expression as Heidegger



Figure 2.1 West façade of Parthenon, Acropolis, Athens, 447 BC

repeated it four times), a building reveals the properties of everything surrounding it. For Norberg-Schulz, the definition of *techne* implies the poetic<sup>9</sup> embodiment of a place through plastic forms rather than the scientific abstraction of a space. Kenneth Frampton, following Martin Heidegger's definition, also argued that *techne* includes the meaning of revealing, which he signified as both knowing and making by explaining that "*techne* reveals the ontological status of a thing through the disclosure of its epistemic value."<sup>10</sup>

The terms technique and technology are derivatives of the same root *techne*: technique originates from Greek *techne*, technology from Greek *techne* and -logy (science or theory) from Greek *logos* (word). According to Marc M. Angelil, who applied these terms to architecture, technique implies the architectural ability to execute particular skills and at the same time, the body of the specialized procedures and methods for architectural production. On the other hand, technology, although having evolved from the word technique,<sup>11</sup> emphasizes a system more rationally intertwined with the development of modern science.

Gevork Hartoonian explained the replacement of the word *techne* with technique or technology historically. According to Hartoonian, Vitruvius and Palladio used *techne* to signify the logos of making, which emphasizes "the ontological bond between art and science."<sup>12</sup> However, from the end of the seventeenth century, *techne*, in its classical sense, was replaced by technique as artists and artisans focused on technical quality rather than on ontological importance to the solve problems. Due to the invention of tools that measured the natural world and Cartesian logic, people began to be concerned with the inner structure of architecture beyond the outer appearance. Hartoonian argued that "a major consequence of the seventeenth-century break with classical thought was a shift

from interests in ‘what’ to ‘how’—that is, from object to process.”<sup>13</sup> As the idea of process became a focal issue in architecture, technology replaced *techne*. Accordingly, Hartoonian insisted that the shift from *techne* to technique and technology took place in the seventeenth century.

In contrast to Hartoonian, who believed that such terms as technique and technology were generalized during the same period, Angelil argued that technique as a skill was subordinated to technology as the structure of scientific thought with the transition from the Middle Ages through the Renaissance to the Age of Reason. According to Angelil, technique maintained both its magical and material aspects. With the transition from magic to science, magical technique, which focused on visual imagination, was discouraged whereas material technique was developed into the idea of technology that focused on conceptual know-how and objective operation. In his conclusion, Angelil argued that technology must re-address the poetic component of technical matters,<sup>14</sup> which reminds one of the meanings of *techne*.

Although architectural critics define technique and technology in slightly different ways, they agree that while the Greeks used *techne* in architecture as a term connoting the poetic revelation of construction as the organized body of knowledge,<sup>15</sup> modern architectural theorists considered the term technology deficient because it signified the structural utilization of construction on the basis of scientific and objective analysis, and thus did not have a higher metaphysical level of architectural theory. In the nineteenth century, when modern structural materials and constructional methods were invented, a plausible term that covered the theoretical explanation of the phenomena of technological construction was needed. In this context, Mitchell Schwarzer explained the background

of flourishing discussions on tectonics as follows:

New iron structures and scientific analyses of living habits revolutionized building construction and appearance. . . architectural theorists sought to coordinate the observable world of building and the inner consciousness of art. Their efforts led to discourse on tectonics . . .<sup>16</sup>

Kenneth Frampton also argued that the term tectonic cannot be divorced from the technological, by identifying three distinct conditions:

1) the *technological object* that arises directly out of meeting an instrumental need, 2) the *scenographic object* that may be used equally to allude to an absent or hidden element, and 3), the *tectonic object* that appears in two modes. We may refer to these modes as the ontological and representational *tectonic*.<sup>17</sup>

The term, tectonic derives from the Greek term *tekton*, signifying carpenter, and the term tectonics matches the Greek *teutonike* that implies the knowledge of carpentry, that is, “the *techne* of carpentry.”<sup>18</sup> According to Frampton, the term, tectonic, as the adjective form of tectonics, has been used in the glossary of English since 1656, implying “belong to building,”<sup>19</sup> and it was initially and elaborately discussed as a modern architectural meaning in Karl Bötticher’s *The Tectonic of the Hellenes* of 1843-52 and in Gottfried Semper’s *The Four Elements of Architecture* of 1851. (Bötticher’s tectonics is discussed in 2.2: Construction, Structure, and Tectonics, and Semper’s in 2.3: Stereotomics and Tectonics.)

In summary, the term tectonics etymologically refers to the art of construction,<sup>20</sup> as Kenneth Frampton described it. While *techne* in terms of etymology refers to the poetic revealing of all fields in which craft and knowledge are needed, tectonics implies

the art of carpentry, which mainly indicates the art of architectural construction. From the materially constructional point of view, carpentry signifies a framing constructional type in which lightweight linear elements are connected with joints in contrast to a massive constructional type in which solid mass is piled up. To satisfy the requirements of modern construction, wood, as the main material of carpentry, is substituted by more intensified materials such as steel and concrete. This presumptive interpretation of tectonic materials may be persuasive in that tectonics has been animatedly used with the theoretical progress of architectural technology. Technology in architecture refers to a rational system that the term *techne* does not cover. On the other hand, technology in architecture does not maintain the meaning of the poetic knowledge of architecture. Tectonics is revived by the need to express a higher level of construction. Besides this etymological analysis, the term, tectonics will be discussed in terms of system in the following chapters.

## **2.2 Construction, Structure, and Tectonics**

Tectonics may be defined by comparing it with such terms as construction and structure, as all three terms define the meaning of a system. In the article “Structure, Construction, and Tectonics,” Eduard F. Sekler, regarding these three words as closely related yet distinct, from one another, defined construction as the concrete realization of a principle or system based on material selection and handling, and structure as the more general and abstract concept referring to a system or principle<sup>21</sup> based on the arrangement of forces. Sekler claimed that another term that means certain expressive qualities in the relationship with the play of forces<sup>22</sup> cannot yet be described in terms of construction

and structure alone. The term he was referring to was “tectonics.”

On the other hand, Adrian Forty defined construction as the everyday practice of building,<sup>23</sup> comparing it with structure, which he divided into three meanings according to historical architectural discourses. Until the middle of the nineteenth century, structure signified “any building in its entirety”<sup>24</sup> in English; in the second half of the nineteenth century, it implied “the abstract system of support of a building independent of actual building and keeps the assumed notions of ‘stability’ distinguished from its other elements, such as its decoration, cladding, or services”<sup>25</sup>; in the twentieth century, structure implied an invisible and intelligible schema that was usually identified through the arrangement of tectonic parts. According to Forty, modernists who used the term, structure confused the second meaning (the support system of a building) with the third meaning (the intelligible schema of the relationship between parts). Although Sekler also regarded structure as the combination of the second and the third definitions of Forty, both Sekler and Forty considered construction based on material facts while regarding the term tectonic differently. The former regarded tectonic as the representational qualities of forces and the arrangement of parts beyond the idea of a technical system while the latter simply considered it a synonym for mechanical. He identified tectonic structure as mechanical structure, which signifies “the system of support independent of material substance.”<sup>26</sup>

The example above shows that architectural theorists have their own unique definitions of tectonic or tectonics. The variation in the definition is so wide that the term cannot be assigned one unified meaning but instead classified into three categories in relation to the concepts of structure and construction. In the first category, tectonic

signifies a technical or mechanically structural form excluded from subjective sensibility, which conforms to Forty's definition. Stanford Anderson, before defining tectonic, introduced the following writing of Le Corbusier: "We may then affirm that the airplane mobilized invention, intelligence, and daring: *imagination* and *cold reason*. It is the same spirit that built the Parthenon. . . . not a bird or a dragonfly, but a machine for flying; the lesson of the airplane lies in the logic which governed the enunciation of the problem and which led to its successful realization."<sup>27</sup> Anderson, emphasizing the importance of objective logic rather than *a priori* personal sensibility in making architectural form, defined the term tectonic as "a complex and evolving concept that attempted to establish a relationship between form and technical considerations."<sup>28</sup> Anderson, connecting the term tectonic to utilitarian design for mass-production, focused on the issue of a technique free from subjective expression.

While Anderson identified the term tectonic with the concept of technical form, Anne-Marie Sankovitch understood it as related to mechanical statics far from subjective sensibility: "the tectonic principle by which load, support, and thrust are accommodated."<sup>29</sup> Sankovitch, regarding the concept of structure as more comprehensive than that of tectonic, argued that "structure includes the system of statics indicated by the more strictly tectonic meaning of the word, and it also encompasses the building's ornament."<sup>30</sup> Sankovitch's definition of structure is based on the original Latin meanings of *structura*, denoting the complete work of architecture itself, which corresponds to Forty's first definition, any building in its entirety. Sankovitch's definition of tectonic is also similar to Forty's. Both associate it with mechanical statics, which constitutes the part of the mentally abstract concept of structure, which is far from a subjective

representation.

In contrast to the first category, in which tectonic is defined as relating to a mechanically structural form devoid of artistic sensibility, in the second, it is stated to be a term possessing the dichotomous meanings of construction: structural and representational forms. As Sekler insisted, the idea of tectonics involves more than technically structural qualities. Mitchell Schwarzer also argued as follows:

The importance of considering tectonics as a discourse lies precisely in the need to rewrite chapters in the history of architecture that have been understood too much through the uniform ascendance of concepts like functionalism and structural realism.<sup>31</sup>

Regarding tectonic qualities beyond the mechanical structure, Gevork Hartoonian believed in the higher level of constructional aspects of the tectonic, interpreting tectonic as “the logos of making”<sup>32</sup> and distinguishing it from mere construction based on mathematics and mechanics and simply responding to gravity. Hartoonian argued that “in the tectonic, column, wall beam, and roof surpass their structural rationality and reveal meaning.”<sup>33</sup> According to him, the tectonic responds to structural forces by analogy and makes them palpable with the help of ornamentation. In this context, ornament is a necessity for the tectonic. On the same basis of such concepts as *techne* and construction, as Hartoonian interpreted the tectonic, Kenneth Frampton argued that the term not only signifies a structural and material integrity but also a poetic construction. In tectonic theory, Frampton regarded “the structural unit as the irreducible essence of architectural form,”<sup>34</sup> and at the same time, focused on the poetic representation of it beyond the technical and mechanical logics of structure.



While the second definition of tectonics focuses on visual forms expressing both structural logic and representational art, the third definition of tectonics is defined as a material construct that creates a spatial effect based on an order. To distinguish between the second and the third categories, one should distinguish the concept of order to that of structural logics: order signifies systematic rules that combine architectural elements. As these rules are organized by tradition, region, the construction industry, materiality, comfort, architectural style, structural calculation, and other such factors, they are not explained by reasons relating to supportive force only. (For further discussion, please refer to 7.1: The Organic Order in Mies' Detail.)

The definition of tectonics described by Carles Vallhonrat falls within the purview of the third category: "Tectonics depends upon a very few fundamental aspects of the physical world. One, of course, is gravity and the physics that goes with it. Gravity affects what we build and the ground beneath it. Another aspect is the structure of the materials we have, or make, and a third is the way we put those materials together. How and why we do it affects the way they appear as the surfaces that bound space."<sup>35</sup> As the final constituent condition of tectonics, Vallhonrat was concerned with the surface effect on space rather than the representation of inner structure. This point of view, which considers the spatial effect of surface as the object of tectonics, may be based on that of Gottfried Semper, who considered structure as secondary, arguing that "wall dressings,"<sup>36</sup> rather than structural frame itself, play the main role in making livable space. He wrote as follows:

The use of the crude weaving that started with the pen—as a means to make the "home," the *inner life* separated from the *outer life*, and as the formal creation of

the idea of space—undoubtedly preceded the wall, even the most primitive one constructed out of stone or any other material.<sup>37</sup>

For Semper, “the *dress*ing and the *mask* are as old as human civilization,” but “masking does not help, however, when behind the mask the thing is false or the mask is no good.”<sup>38</sup> Wanting to draw attention to “the principle of dressing and incrustation”<sup>39</sup> that veiled inner structure, Semper emphasized the mastery of material and its techniques, only through which architects can upgrade raw material into the spiritualized form. He regarded this “spiritualized fashion” as “structural-symbolic rather than structural-technical.”<sup>40</sup> Semper argued, “only by complete technical perfection, by judicious and proper treatment of the material according to its properties, and by taking these properties into consideration while creating form can the material be forgotten, [and] can the artistic creation be completely freed from it, and can even a simple landscape painting be raised to a high work of art.”<sup>41</sup>

In contrast to the third category, which focuses on the spatial effect created from the material, the second, which may have originated from Karl Bötticher’s core-form and art-form, emphasizes that tradition defines tectonics with a dichotomy between structural core and meaningful representation. Mitchell Schwarzer claimed that Bötticher defined architectural tectonics simply as “the activity of forming a building”<sup>42</sup>; however, in *Die Tektonik der Hellenen*, Bötticher suggested two elements of *tektonik*, the core-form (*kernform* or *werkform*) and the art-form (*kunstform*) as the essential issues of tectonics. One may conclude<sup>43</sup> that Bötticher defined tectonics as the activity of forming a building composed of the core form and the art form. Bötticher explained these two terms: “The core-form of each part is the mechanically necessary and statically functional

structure; the art-form, on the other hand, is only the characterization by which the mechanical-statical function is made apparent.”<sup>44</sup>

According to Mitchell Schwarzer, Bötticher’s writings on architectural tectonics during the 1840s suggested a new direction in architectural theory because his tectonics illuminated architecture in terms of the constructional process revealing “social and physical forces”<sup>45</sup> and his “association of structure and ornament with ontology and representation was new to architectural thinking.”<sup>46</sup> Schwarzer argued that the dual concepts of ontology and representation allowed Bötticher to prospect for “the cognitive space to advance a radical proposal for technological innovation in iron. Without this split and its embodiment of tradition and history in the moderating *Kunstform*, the modern metaphysics of structural realism might have taken a different course.”<sup>47</sup> Despite the spatial possibilities of iron, Bötticher still believed, in 1846, that the new iron structure should be covered by a historical style. Otherwise, he commented that “architecture could never be elevated to an object of history.” According to Schwarzer, the conflict between technological innovation and the pursuit for eternal beauty demanded that Bötticher provide “separate trajectories and identities for *Kunstform* and *Werkform*.”<sup>48</sup>

Bötticher defined the art form as “only a covering and a symbolic attribute of the part-decoratio, κοσμος”<sup>49</sup> Frampton also interpreted the core form (*Kernform*) as the essence of the constructional nucleus and the art form (*Kunstform*) as cladding or ornament.<sup>50</sup> Bötticher explained that, unlike natural form by life force, tectonics, by creating its form from dead material, is unable to express the process “in any other way than in semblance to the natural unfolding, which here seems as if applied and added to it

from the outside.”<sup>51</sup> According to Wolfgang Herrmann, Semper remarked that he could not agree with Bötticher, noting, “I admit that decorative symbols have no real static function, but it is wrong to conclude that they are applied and added from the outside.”<sup>52</sup> The tie between structure and ornament were clearly severed when Leon Battista Alberti argued that ornament is auxiliarily “attached or additional.”<sup>53</sup>

On the other side, Semper suggested another opinion of ornament by illustrating the bindings of wire in the following:

With rigid materials, like metal wire, it is the best to bind many wires into one.

This system of cords is capable of the richest ornamental development and almost elegance. . . It is likely that through this agency the plait became one of the earliest and the most useful symbols of the technical arts that architecture borrowed.<sup>54</sup>

Semper implied that ornaments are not added afterwards and cannot be separated from the structure of the material because the body becomes the ornament and the structure at the same time. He argued that “the parts of an architectural work of art can be explained as material parts of a construction not only by their real or symbolic significance.”<sup>55</sup> For Semper, the artistic or ideal aspect of tectonics was neither added from the outside nor confined to independently ornamental objects.

In contrast to Bötticher’s dichotomy of the structure and the ornament of architecture, Semper’s tectonics is based on close relationship between the structure and the material. He stated that as follows: “Tectonics deals the product of human artistic skill, not with its utilitarian aspect but solely with that part that reveals a conscious attempt by the artisan to express cosmic laws and cosmic order when molding the

material.”<sup>56</sup> Schwarzer also identified Semper’s tectonics in terms of a collective sense of material creation that overcame the Western dichotomy between rational reason and subjective imagination: “He [Semper] recommended that, rather than beginning with the mind’s rational or imaginative faculties, historians of the visual arts take into account man’s handling of the physical world. To a large degree, Semper located the unity of culture in the ways that people satisfied both their spiritual and material drives in the act of making artistic and/or useful things.”<sup>57</sup>

Semper’s tectonics is distinguished from Bötticher’s, in that Semper clarified in his views on the significance of material. Herrmann wrote their different points of view regarding material use: “The material employed, its properties, and its negative or positive effect on form and shape were of decisive importance for Semper. To Bötticher it mattered only that the function was clearly expressed, and it was therefore of no consequence to him.”<sup>58</sup> Bötticher did not explain *Tektonik* in terms of construction that meets both material and spiritual needs, but rather in terms of “the activity that raises this construction to an art form.”<sup>59</sup> Semper objected to Bötticher’s expression that the core-form is “conceived,” noting that it was “not conceived but arises out of necessity.”<sup>60</sup> As Schwarzer insisted, Bötticher seemed to agree with Schinkel that “architectonic relations are based on general static laws,”<sup>61</sup> providing a comprehensive tectonic theory covering modern innovative space and realizing the objectivity of art by introducing structural realism to the existing artistic subjectivism of architecture. However, this dissertation argues that Bötticher bequeathed a fixed tradition that separated ornament from structure, beauty from truth, and art from science in Western discourse on tectonics. (One can easily find an ambiguous dichotomy between art and science in the dictionary definitions

of “architectural tectonics,” which have not yet reached a consensus. The *Oxford Dictionary* defines “tectonics” as “the art and process of producing practical and aesthetically pleasing buildings,”<sup>62</sup> while *WordNet* defines it as “the science of architecture.”<sup>63</sup>)

The terms of Bötticher, core form and art form, are based on the concept of form rather than of material, detail, or a constructional whole. Since architectural tectonics implies the premise of building and construction rather than form-oriented concepts, the tradition of dividing the definitions of tectonic into logical reading and artistic meaning needed to be revised or extended to a more comprehensive concept that met the needs of architecture. About 150 years has passed after Bötticher’s *Die Tektonik der Hellenen* was published in 1852. Akos Moravansky argues that we should more directly appreciate the sensuality of material surfaces rather than load architecture buildings with meanings because today we no longer recognize such meanings.<sup>64</sup> Semper’s theory of tectonics, although it was almost as old as Bötticher’s, provided another insight into tectonic thinking, the details of which are described in the next chapter. Semper’s material approach of space is similar to Mies’ theory of the art of building focusing on interior space. Semper’s dual concepts of tectonics and stereotomics suggest the importance of the material effect on space beyond structural expression and form the basis of another interpretation of Mies’ structure and tectonics.

### **2.3 Stereotomics and Tectonics**

One can define tectonics by contrasting it with stereotomics. Both terms are derived from the technical arts and the material approach of Semper, but in a broader

sense, Semper identifies tectonics as all artistic skill revealing cosmic order by molding the material in the following statement: “Tectonics deals with the product of human artistic skill, not with its utilitarian aspect but solely with that part that reveals a conscious attempt by the artisan to express cosmic laws and cosmic order when molding the material.”<sup>65</sup> According to Wolfgang Herrmann, before Semper read Bötticher’s *Die Tektonik*, he never used the term tectonics, simply defining the process of building as “joining material into an organized form.”<sup>66</sup> When Semper became aware of the term in Bötticher’s *Die Tektonik*, where it was defined as “any activity having to do with building and furnishing,”<sup>67</sup> he reacted by extending its meaning to encompass all technical arts. Some time later, when revising the text of his book, the subtitle of which was “The Technical Arts,” Semper is said to have replaced the word tectonics with the term “fine arts” or simply “arts” or “artistic skill”<sup>68</sup> whenever he used it in the broader sense.

On the other hand, enumerating the four basic technical skills of ceramics (afterwards metalwork), masonry, timberwork and weaving, Semper referred to timberwork, or carpentry, as tectonics, adding to this description “in the narrower sense of the word.”<sup>69</sup> Accordingly, under the influence of Bötticher’s *Die Tektonik*, Semper used tectonics in a broader meaning comprised of all artistic skills dealing with material and then formulated his own concept of tectonics by confining the use of it to carpentry within the boundary of architecture. Despite his adoption of the term tectonics from Bötticher, Semper’s tectonics differs from Bötticher’s, in that it more concretely develops the material approach of architecture on the basis of artistic skill by contrasting tectonics with stereotomics.

Stereotomics denotes the knowledge or quality of stereotomy, defined in a

dictionary as “the science or art of cutting solids into certain figures or sections, as arches, and the like; especially, the art of stonecutting.”<sup>70</sup> That is, as the Greek etymology of stereotomy is composed of two roots, *stereos*, solid, and *tomia*, to cut,<sup>71</sup> stereotomy simply signifies the art or technique of cutting solids. While its dictionary definition and etymology as well as the history of stereotomy emphasize the importance of the cutting technique, Semper’s concept of stereotomy focuses more on massive materiality and the constructional process rather than on the stonecutting itself. According to Cornelis van de Ven, “with stereotomic Semper meant, above all, a constructive method of assembling mass in such a manner that the total plasticity was moulded in one undivided dynamic unity.”<sup>72</sup> Stanford Anderson summarized Semper’s term *Tektonik* as “constructs of articulated elements (elastic skeletal structures, e.g., timber or metal frames)” and the term *Stereotomie* as “comparatively inert assemblies (intractile masses, e.g., masonry walls).”<sup>73</sup> On the other hand, Gustav Adolf Platz, applying Semper’s tectonics and stereotomics to contemporary materials, included iron and steel in *Tektonik* as membered structures and concrete in *Stereotomie* as wall structures.<sup>74</sup>

Semper’s term, *tektonik* and *stereotomie* are not only based on the properties of the materials related to the two technical skills of carpentry and masonry but also derived from the components of Semper’s four elements that suggest four built types. According to Semper, the four elements that composed ancient architecture were the hearth (the sacred focus), the mound (the earthen platform), the roof on columns (supporting system), and finally the enclosure as a textile hanging.<sup>75</sup> At the same time, technical skills match these elements, as Semper described as follows:



Ceramics and afterwards metal works around the hearth, water and masonry works around the mound, carpentry around the roof and its accessories. But what primitive technique evolved from the enclosure? None other than the art of the wall fitter (*Wandbereiter*), that is, the weaver of mats and carpets.<sup>76</sup>

On the basis of this pragmatic anthropological<sup>77</sup> taxonomy of Semper, Kenneth Frampton interpreted *tectonics* and *stereotomics* as follows: “the *tectonics* of the frame, in which lightweight, linear components are assembled so as to encompass a spatial matrix, and the *stereotomics* of the earthwork, wherein mass and volume are conjointly formed through the repetitious piling up of heavyweight elements.”<sup>78</sup> Frampton actively applied tectonics to the modern constructional situation by focusing on the issue of the spatial matrix of the structural frame, while he expanded stereotomics in terms of the constructional process by describing “the repetitious piling up”<sup>79</sup> of load-bearing masonry.

In contrast to the explanation above, in which each material property and constructional process clearly correspond to either tectonics or stereotomics, one cannot make one-to-one matches between the tectonics of Semper’s and the interpretation of the wall of George Edmund Street, who introduced two types of Gothic wall, walls veneered with thin layers of marble and substantial marble walls:

In my notes upon the buildings as they were passed in my journeys, I have described two modes in which this kind of work was treated; the first was that practised in Venice- the veneering of brick walls with thin layers or coats of marble; the other, that practised at Bergamo, Cremona, and Como, in which the marble formed portion of the substance of the wall. These two modes led, as

would naturally be expected, to two entirely different styles and modes of architecture.<sup>80</sup>

If one applies Street's veneering wall and substantial wall to Semper's tectonic and stereotomic walls, one may view the construction of the monolithic wall as conforming to Semper's stereotomic wall, but not his tectonic wall. Semper regards the tectonic wall as a combined type, that is, "the frame with the corresponding filling,"<sup>81</sup> which Frampton, in modern sense, referred to as the framework and the lightweight enclosing membrane, respectively.<sup>82</sup> Although Semper's theory on original tectonics was based on carpentry as the frame or the support, the spatially enclosing function was more important than the structurally supporting one in Semper's tectonic wall. As Semper considered the intrinsic function of the wall as a spatial enclosure by stressing that in all Germanic languages, the word *Wand* (wall) has the same root and basic meaning as *Gewand* (dress),<sup>83</sup> the tectonic wall of Semper is spatially and materially focused. For Semper, structure was veiled by material dressing and needed to provide itself as the frame or the support of the enclosing membrane.

Frampton also asserted that this "tectonic/stereotomic distinction was reinforced in German by that language's differentiation between two classes of wall: the *die Wand*, indicating a screen-like partition such as the type we find in wattle and daub infill construction, and *die Mauer*, signifying massive fortification."<sup>84</sup> Although Frampton stressed the importance of the structure by regarding "the structural unit as the irreducible essence of architectural form"<sup>85</sup> in his tectonic theory, he appeared to say that the screenlike infilling was also an essential part of the tectonic wall. Jesús María Aparicio Guisado also argued that tectonics comprised both the structure and the covering: "In

German, the word for tectonic is *Wand*, which comes from *Gewand*, to dress. In this way, the tectonic is connected with dressing, with covering and therefore, also with skeleton, with structure.”<sup>86</sup>

Another description similar to the Semperian concepts of the tectonic wall applied to modern built types is that of Adolf Max Vogt, who referred to Joseph Paxton’s distinction between “table and tablecloth.”<sup>87</sup> Paxton compared the support structure to the table and the glass skin to the tablecloth in his description of the innovative features of the Great Exhibition hall, the so-called Crystal Palace of 1851 (Figure 2.2), as the characteristic of the improved building method that adapted to modern changing conditions. According to Vogt, it was marvelous that Semper’s theory of the Caribbean Hut was exhibited in the Crystal Palace at that time. The wall of this primitive house,

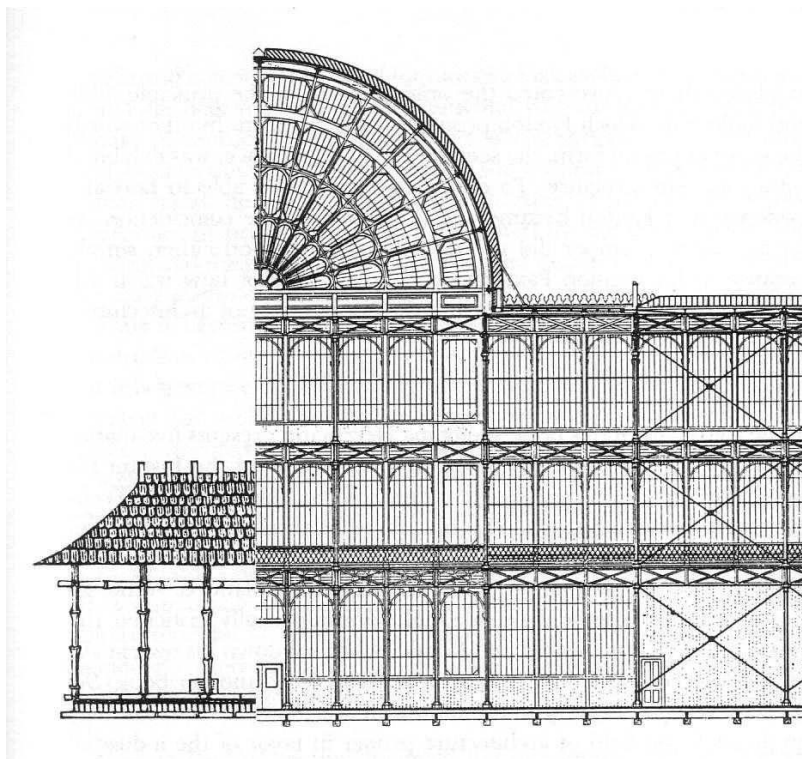


Figure 2.2 Caribbean hut as represented in the Great Exhibition, 1851

Semper argued, was not made of stone but of textiles hung on a frame analogous to the relationship between the table and tablecloth in the Crystal Palace. Vogt said that “the germ of primal form, the seed for the Crystal Palace, was exhibited within its own structure.” (However, Semper did not seem to notice the connection.) Robert Dell Vuyosevich pointed out that the glass curtain wall as a modern constructional method still retained the word curtain, the essential motif of the Semperian wall, so Vuyosevich expected that this “would amuse Semper.”<sup>88</sup> Rosemaie Hagg Bletter also reiterated that Semper gave as an example the German terms *mauer* and *wand*. Although both terms generally imply wall, the second meaning of *Mauer* is battlement, and *Wand* has also the meaning of “screen.”<sup>89</sup> For Semper, walls indicate the lightweight enclosures, such as screen and curtain.

In brief, Semper newly defined tectonics and stereotomics from his anthropological point of view, which was based on the collective sensibility of the material properties and the technical skills of ancient buildings. Frampton and Guisado further expanded these concepts so that they were more concrete and adaptable to modern architecture. In particular, Vogt’s comparison between the Caribbean Hut and the Crystal Palace provided a connection between Semper’s textile wall and modern curtain wall in terms of tectonics. The most important contribution of Semper’s tectonics may be that it raised the issue of space with regard to structure as secondary to spatial enclosure in architectural construction. Cornelis van de Ven described the contribution of Semper in terms of material space as follows: “For the first time in the history of architectural theory, existential forces innate in man related to the human artifacts and its space enclosing functions. Both tectonic and stereotomic form are no longer seen a planar

treatment of ornament, but as a direct response to the spatial direction of man, with respect to the technique and nature of the materials used.”<sup>90</sup>

The insight of Semper differed from that of Bötticher, whose tectonics gave rise to the dichotomy between the core form and the art form, and thus, encouraged the proliferation of structural theories in tectonic debates. While Bötticher’s tectonics concerned the ontology and the representation of spatial structure, Semper’s tectonics suggested a materially spatial approach, the object of which was a high level of spatial effect beyond simply material techniques.

On the basis of Semper’s point of view, expanded as it was by Frampton and Guisado,<sup>91</sup> his tectonics may be defined as knowledge dealing with the spatial construct composed of clearly jointed framing elements clad or infilled with lightweight material compared with stereotomics, which is concerned with a monolithic construct with the massive continuum of solid material. The new definition of Semper’s stereotomics and tectonics may be universal in the classification of modern built types, if one refers to the following Carles Vallhonrat description: “One can imagine the entire repertoire of construction materials organized along that grand counterpoint between mass or masonry materials and that other group that comes out of point loads, and the notion of frame and infill panels.”<sup>92</sup>

Semper’s tectonics was based on material sensibility in contrast to Bötticher’s tectonics, based on a structural system. According to Bötticher, “No longer can stone alone form a new structural system of a higher stage of development,”<sup>93</sup> so a new material and structural system should be adopted in order to “permit wider spans, with less weight and greater reliability” than stone alone. He continued, saying that “a minimal

quality of material should be needed for the walls, thus rendering the bulky and ponderous buttresses of the *Spitzbodenstil* [Gothic arcuated system] completely superfluous.”<sup>94</sup> Bötticher argued that iron would become a new “basis for the covering system” and that iron structures would “come to be as superior to the Hellenic and medieval systems as the arcuated medieval system was to the monolithic trabeated system of antiquity.”<sup>95</sup> Bötticher interpreted the history of constructional systems in terms of structural progress. In his view, the iron tectonic system was superior to the existing stereotomic system, and the tectonically trabeated system of stone was inferior to the stereotomically arched medieval system; stereotomy implied cutting stones into complex forms such as vaults, helical stairways, and arches.<sup>96</sup> In contrast to Semper, Bötticher seemed to give little attention to material sensibility, which distinguished tectonic tensility from stereotomic compressibility; rather, his major interest was in structural progress that enabled quantitatively voluminous space.

Naturally, Bötticher’s point of view, which focused on spatial structure, produced an interpretation of the Greek temple that differed from Semper’s. In the *Der Stil*, Semper argued that the Greek temple, although revealing the highest form, was based on “stone tectonics”<sup>97</sup> which implies a heterogeneous combination of tectonic form with stereotomic material. Stereotomic pieces, which are identical or similar to one another, act monotonously as members of resisting compression, while the size and the shape of tectonic members are various in their action following each of their positions in the frame. Semper regards the tectonic members of Greek stone temples as “organic forms,”<sup>98</sup> which, by means of art, could be brought to life like organisms. In contrast to this organic quality of tectonic members, stereotomic mass was felt to be lifeless due to the constructed

totalities of a eurythmic character, which Semper considered as a regular, closed form. Semper described Greek architecture as a body that maintained organic forces by “striving against mass and weight”<sup>99</sup> and by encrusting the structure with decoration “so intimately bound together by this influence of the principle of surface dressing that an isolated look at either is impossible.”<sup>100</sup>

Although Semper approved of the organic life of Greek architecture, which united tectonic structure with stereotomic incrustation, in contrast to barbaric architecture, in which the elements of structure and decoration come together mechanically or “inorganically,”<sup>101</sup> he believed the theory that the Greek temple had been originally conceived in stone was “untenable.”<sup>102</sup> Semper argued that, despite of their barbarous organization of architectural elements, the Assyrian, the Medes, and the Babylonians influenced Greek architecture. Based on his anthropological research, Semper maintained that material was subject to replacement, so its forms were transferred to another material, and that this process, having begun in the early period, still remained:

The timber style must have been modified by a prior change in material and could have evolved from this change to the stone style only through the mediation of a second change in material.<sup>103</sup>

In contrast to Semper, Bötticher insisted that the Hellenes “possessed from the beginning a higher intellectual potency”<sup>104</sup> that enabled them “to represent the innermost character of stone architecture.” According to Bötticher, Hellenic architecture was “originally invented for stone-building,” and “the traditional view that stone architecture imitated timber building is untenable.”<sup>105</sup> Regarding the origin of the Greek temple, one still cannot judge who was most accurate in debates among those who favored material

logic or classical styles; however, in terms of materially constructional types, Bötticher's argument was ambiguous as to the innermost character of stone and the relationship of his structural principle to this material characteristic. A structural system of the post-and-lintel type made of stone seemed inefficient, as stone could not resist bending moments. In contrast, Semper's tectonic theory was persuasive and practical, as it created the material concepts of tectonics and stereotomics in constructional theory and synthesized tectonics with the idea of organic incrustation.

## **2.4 The Definition of Tectonics**

The objective of this Chapter 2 is to identify the term “tectonics” comprehensively rather than to stress the concept of tectonics of each specific theorist. In order to use the definition of tectonics as a criterion according to which one can comprehend Mies' words and works, this chapter defines tectonics in a more general sense by collecting and categorizing different positions. At the conclusion of this chapter, this dissertation defines tectonics as the “art of framing construction,” in which linear elements are put together with joints and clad or infilled with lightweight material. The “art of framing construction” reveals a common concept of existing tectonics in three categories: in terms of its etymology in the first chapter, in terms of building system in the second, and in terms of Gottfried Semper's material construct in the third. First, tectonics is based on framing construction in contrast to piling-up construction or stereotomics, as the etymology of tectonics signifies the art of carpentry (discussed in Chapter 2.1). Then, this definition of tectonics is beyond the idea pertaining to a



mechanically structural element devoid of artistic sensibility (discussed in Chapter 2.2). Thus, the term tectonics, dealing as it does with a higher level of construction rather than the mechanical level of structure, incorporates the poetic aspect of *techne* as well as the rational aspect of technology. Third, Owing to the organic, double system of tectonic frame and incrusting or infilling materials, the tectonic body becomes both the ornament and the structure simultaneously (discussed in Chapter 2.3). This dual characteristic of the tectonic body suggests a more comprehensive view which overcomes the concept of tectonics that focuses on structurally supportive forms. In that sense, this definition avoids the tradition of dividing tectonics into logical structure and artistic ornament, which may have originated from Bötticher's core form and art form. As the "art of framing construction" is based on material construction rather than structural or ornamental form, this dissertation proposes that one can view tectonics as a term that conveys the meaning of the actual material effect on space.

While Chapter 2 discussed the term tectonics from a comprehensive point of view in order to identify it, Chapters from 3 to 6 will discuss Mies' art of building itself and then Chapter 7, as a synthetic chapter of this dissertation, will discuss Mies' art of building by applying concepts of tectonics discussed in Chapter 2. Thus, Chapter 7 will more deeply discuss and analyze the tectonics of specific theorists who have researched Mies' architecture or whose tectonic theories have something in common with Mies' concept of the art of building. The most influential figures among these theorists are Eduard F. Sekler, Kenneth Frampton, and Gottfried Semper. First, Eduard F. Sekler, who newly raised the issue of tectonics<sup>106</sup> in relation with architectural structure and construction free from architectural style, also analyzed Mies' architecture in terms of

tectonics. Then, Kenneth Frampton suggested an overall view of tectonics and Mies' art of building free from artistic tradition by stressing architectural autonomy. Despite his controversial discussion on tectonics (described in Chapter 7.3), Frampton may become one of the most important historians who contributed to the enlargement of tectonic discourse in contemporary architectural theory. Finally, in the case of Gottfried Semper, as several critics<sup>107</sup> attempted to illuminate Mies' architecture in the light of Semper's tectonics, it may be meaningful to analyze and identify Mies' art of building by making a comparison between Semper's tectonics and Mies' art of building.

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- <sup>1</sup> Demetri Porphyrios, "From techne to Tectonics," in *What is Architecture?*, ed. Andrew Ballantyne (London, New York: Routledge, 2002), 131.
- <sup>2</sup> Martin Heidegger, "The Origin of the Work of Art," *Poetry, Language, Thought*, trans. and intro. Albert Hofstadter (New York: Harper & Row, 1971), 59.
- <sup>3</sup> Ibid.
- <sup>4</sup> Martin Heidegger, "Building Dwelling Thinking," *Poetry, Language, Thought*, 146.
- <sup>5</sup> Op.Cit. 156.
- <sup>6</sup> Martin Heidegger, *The Question Concerning Technology and Other Essays*, trans. and intro. William Lovitt (New York: Harper & Row, 1977), 13.
- <sup>7</sup> Christian Norberg-Schulz, "The Phenomenon of Place" (1976), 414 and 420.
- <sup>8</sup> Martin Heidegger, "The Origin of the Work of Art," *Poetry, Language, Thought*, 42.
- <sup>9</sup> Christian Norberg-Schulz, "Order and Change in Architecture," in *What is Architecture?*, ed. Andrew Ballantyne (London, New York: Routledge, 2002), 50-51.
- <sup>10</sup> Kenneth Frampton, *Studies in Tectonic Culture: the Poetics of Construction in Nineteenth and Twentieth Century Architecture* (Cambridge: The MIT Press, 1995), 23.
- <sup>11</sup> Marc M. Angelil, "Technique and the Metaphysics of Science," *The Harvard Architecture Review* 7 (1989).
- <sup>12</sup> Gevork Hartoonian, 29.
- <sup>13</sup> Gevork Hartoonian, 13.
- <sup>14</sup> Marc M. Angelil
- <sup>15</sup> I use Demetri Porphyrios' expression "the organized body of knowledge." Demetri Porphyrios, 134.
- <sup>16</sup> Mitchell Schwarzer, *German Architectural Theory and the Search for Modern Identity* (Cambridge: Cambridge University Press, 1995), 167.
- <sup>17</sup> Kenneth Frampton, "Rappel à L'ordre, the Case for the Tectonic" (1990). Republished in *Theorizing a New Agenda for Architecture*, ed. Kate Nesbitt (New York: Princeton Architecture Press, 1996), 521.
- <sup>18</sup> Demetri Porphyrios, 134-135.
- <sup>19</sup> Kenneth Frampton, 521.
- <sup>20</sup> Kenneth Frampton, *Studies in Tectonic Culture*, 3.
- <sup>21</sup> Eduard F. Sekler, "Structure, Construction, and Tectonics," in *Structure in Art and in Science*, ed. Gyorgy Kepes (New York: George Braziller, 1965), 89.
- "[In architecture] structure as the more general and abstract concept refers to a system or principle of arrangement destined to cope with forces at work in a building, such as post-and-lintel, arch, vault, dome and folded plate. Construction on the other hand refers to the concrete realization of a principle or system- a realization which may be carried out in a number of materials and ways."
- <sup>22</sup> Ibid.
- "When a structural concept has found its implementation through construction, the visual result will affect us through certain expressive qualities which clearly have something to do with the play of forces and corresponding arrangement of parts in the building, yet cannot be described in terms of construction and structure alone. For these qualities, which are expressive of a relation of form to force, the term tectonic

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should be reserved.”

<sup>23</sup> Adrian Forty, *Words and Buildings-A Vocabulary of Modern Architecture* (New York: Thames and Hudson, 2000), 281.

<sup>24</sup> Adrian Forty, 276.

<sup>25</sup> Ibid.

<sup>26</sup> Adrian Forty, 280.

<sup>27</sup> Le Corbusier, *Towards a New Architecture* (London, 1946), 101-102. Quoted in “Modern Architecture and Industry: Peter Behrens, the AGE, and Industrial Design,” Stanford Anderson, *Oppositions* 21 (Summer 1980): 86.

<sup>28</sup> Stanford Anderson, 86.

<sup>29</sup> Anne-Marie Sankovitch, “Structure/ornament and the Modern Figuration of Architecture,” *Art Bulletin* 80, no.4 (December 1998): 687-717.

“In a strictly literal sense, that is, in architectural discourse, when we say that a building has a ‘structure,’ this noun signifies the material realization of the tectonic principle by which load, support, and thrust are accommodated, as distinct from the rest of the building. On the other hand, the word structure in English (as opposed to French) still retains one of the original Latin meanings of *structura* that allows it to denote literally the entire structure, the complete work of architecture itself, and it is a word used interchangeably with building, edifice, monument, and so on [The Lewis and Short Latin Dictionary, 1<sup>st</sup> ed.]. In this sense, structure includes the system of statics indicated by the more strictly tectonic meaning of the word, and it also encompasses the building’s ornament. Structure thus describes a self-sufficient entity, the building as a closed object, a unified and autonomous presence.”

<sup>30</sup> Ibid.

<sup>31</sup> Mitchell Schwarzer, *German Architectural Theory and the Search for Modern Identity* (Cambridge: Cambridge University Press, 1995), 171.

<sup>32</sup> Gevork Hartoonian, *Ontology of Construction - On Nihilism of Technology in Theories of Modern Architecture* (Cambridge: Cambridge University Press, 1994), 40.

<sup>33</sup> Ibid.

<sup>34</sup> Kenneth Frampton, “Rappel à L’ordre, the Case for the Tectonic” (1990). Republished in *Theorizing a New Agenda for Architecture*, ed. Kate Nesbitt (New York: Princeton Architecture Press, 1996), 519.

<sup>35</sup> Carles Valhonrat, “Tectonic Considered, Between the Presence and the Abstract of Artifice,” *Perspecta* 24 (1988): 123. In this paper, Valhonrat discussed the issue of tectonics in terms of gravity, structure, material assembly and compositional strategies by researching historical buildings in point. He regards the appearance of carbon steel in the second half of the nineteenth century as one of examples in which a new technique altered the imagery of buildings. He, arguing that Perret and Kahn stand at the beginning and end of Modernism in terms of tectonics, believes that the Moderns were not moved by a desire for construction but by an impulse for a new concept of space, so that their work did not express tectonic intent, with “the single exception of Mies.” Valhonrat found Mies’ tectonic contribution in his late buildings. In conclusion, he stressed the importance of the compositional strategies by which, one can achieve the ideal of delineated spaces. According to him, regardless of various kinds of constructional system, tectonic art exists “between its presence and

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- its absence.” Besides this paper, Vallhonrat published “The In-Visibility of Tectonics: Gravity and the Tectonic Compacts,” *Perspecta* 31 (2000):22-35.
- <sup>36</sup> Gottfried Semper, *The Four Elements of Architecture and Other Writings*, translated by Harry F. Mallgrave (Cambridge: Cambridge University Press, 1989), 254.
- <sup>37</sup> Ibid.
- <sup>38</sup> Op cit. 257.
- <sup>39</sup> Op cit. 248.
- <sup>40</sup> Semper, Gottfried. *Style in the Technical and Tectonic Arts, or, Practical Aesthetics*, trans. Harry Francis Mallgrave and Michael Robinson (Los Angeles: Getty Research Institute, 2004), 243.
- <sup>41</sup> Gottfried Semper, *The Four Elements of Architecture and Other Writings*, 258.
- <sup>42</sup> Mitchell Schwarzer, “Ontology and Representation in Karl Bötticher’s Theory of Tectonics,” *Journal of the Society of Architectural Historians* 52, no.3 (Sept. 1993): 267.
- <sup>43</sup> Wolfgang Herrmann, Mitchell Schwarzer and Kenneth Frampton argue that the essence of Bötticher’s *Tektonik* is the core form and the art form in their description on Bötticher’s tectonics.
- <sup>44</sup> Karl Bötticher, *Die Tektonik der Hellenen* (1852), vol. 1, xv. Interpreted in Wolfgang Herrmann, *Gottfried Semper: In search of architecture* (Cambridge: MIT Press, 1984), 141.
- <sup>45</sup> Mitchell Schwarzer, 267.
- <sup>46</sup> Mitchell Schwarzer, 273.
- <sup>47</sup> Mitchell Schwarzer, 280.
- <sup>48</sup> Mitchell Schwarzer, 278.
- <sup>49</sup> Karl Bötticher, *Die Tektonik der Hellenen* (1852). Trans. by Wolfgang Herrmann, 141.
- <sup>50</sup> Kenneth Frampton, “Bötticher, Semper and the Tectonic: Core Form and Art Form,” in *What is Architecture?*, 139.
- <sup>51</sup> Karl Bötticher, *Die Tektonik der Hellenen* 1 (1852), 7f. Trans. by Wolfgang Herrmann, 142.
- <sup>52</sup> Gottfried Semper’s note. Trans. by Wolfgang Herrmann, 142.
- <sup>53</sup> Leon Battista Alberti, *On the Art of Building in Ten Books*, trans. Joseph Rykwert, (Cambridge: MIT Press, 1988), 156.
- <sup>54</sup> Gottfried Semper, *The Four Elements of Architecture and Other Writings*, (Cambridge: University Press, 1989), 220-221.
- <sup>55</sup> Op.cit. 141.
- <sup>56</sup> Gottfried Semper, “Theory of Formal Beauty” (1855-1859): fol. 47. Trans. by Wolfgang Herrmann, 151.
- <sup>57</sup> Mitchell Schwarzer, *German architectural theory and the search for modern identity*, 175.
- <sup>58</sup> Wolfgang Herrmann, *Gottfried Semper: In Search of Architecture* (Cambridge: MIT Press, 1984), 149.
- <sup>59</sup> Stanford Anderson, “Modern Architecture and Industry: Peter Behrens, the AGE, and Industrial Design,” *Oppositions* 21 (Summer 1980): 83.
- <sup>60</sup> Semper’s note. Interpreted in Wolfgang Herrmann, 141.
- <sup>61</sup> Mitchell Schwarzer, “Ontology and representation in Karl Bötticher’s theory of

- tectonics,” *Journal of the Society of Architectural Historians* 52, no.3 (September 1993): 274-275.
- <sup>62</sup> *The Concise Oxford Dictionary of Current English* (1995), Ninth Edition.
- <sup>63</sup> *WordNet* ® 2.0 (Princeton University, 2003)
- <sup>64</sup> Akos Moravansky, “The Language of Materials in Architecture: ‘Truth to Material’ vs ‘the Principle of Cladding’,” *AA Files* 31 (Summer 1996): 46.
- <sup>65</sup> Gottfried Semper, “Theory of Formal Beauty” (1855-1859), fol. 47. Trans. by Wolfgang Herrmann, 151.
- <sup>66</sup> Gottfried Semper, “Comparative Building Theory” (1849-1850), fol.29. Trans. by Wolfgang Herrmann, 151.
- <sup>67</sup> Karl Bötticher, *Die Tektonik der Hellenen* (1852), vol. 1, 3. Trans. by Wolfgang Herrmann, 151.
- <sup>68</sup> Gottfried Semper, “Theory of Formal Beauty” (1855-1859), fol.47. Trans. by Wolfgang Herrmann, 151.
- <sup>69</sup> Gottfried Semper, “Theory of Formal Beauty” (1855-1859), fol.100. Trans. by Wolfgang Herrmann, 151.
- <sup>70</sup> *Webster's Revised Unabridged Dictionary* (MICRA, 1996).
- <sup>71</sup> Kenneth Frampton, *Studies in Tectonic Culture: the Poetics of Construction in Nineteenth and Twentieth Century Architecture* (Cambridge: The MIT Press, 1995), 5.
- <sup>72</sup> Cornelis van de Ven, *Space in Architecture: the Evolution of a New Idea in the Theory and History of the Modern Movements* (Amsterdam: Van Gorcum Assen, 1978), 77.
- <sup>73</sup> Stanford Anderson, “Modern Architecture and Industry,” *Opposition* 21 (Summer 1980), 86.
- <sup>74</sup> Gustav Adolf Platz, *Die Baukunst der neuesten Zeit* (Berlin: Propylaen, 1927), 132-34. Platz refers to Gottfried Semper’s *Der Stil* (1878-79).
- <sup>75</sup> Adolf Max Vogt, the Forward of Wolfgang Herrmann, *Gottfried Semper: In Search of Architecture* (Cambridge: MIT Press, 1984), xii.
- <sup>76</sup> Gottfried Semper, *The Four Elements of Architecture and Other Writings*, trans. Harry F. Mallgrave (Cambridge: Cambridge University Press, 1989), 103.
- <sup>77</sup> I use Adolf Max Vogt’s expression, “pragmatic anthropological” in Adolf Max Vogt, xii.
- <sup>78</sup> Kenneth Frampton, 5.
- <sup>79</sup> *Ibid.*
- <sup>80</sup> George Edmund Street, *Brick and Marble in the Middle Ages* (London: John Murray, 1855), 278-279. Edward R. Ford interprets “the veneering of brick walls with thin layers or coats of marble” as the “incrusted” type and “the marble formed portion of the substance of the wall” as the “monolithic” type: Edward R. Ford, *The Details of Modern Architecture* (Cambridge: MIT Press, 1990), 3.
- <sup>81</sup> Gottfried Semper, *Style in the Technical and Tectonic Arts, or, Practical Aesthetics*, trans. Harry Francis Mallgrave and Michael Robinson (Los Angeles: Getty Research Institute, 2004), 624. Semper wrote regarding “the tasks of tectonics” as follows: “1. the frame with the corresponding filling; 2. the lattice, a complicate frame; 3. the supports; 4. the structure, an integration of the supports with the frame.”
- <sup>82</sup> Kenneth Frampton, 5.
- <sup>83</sup> Gottfried Semper, *The Four Elements of Architecture and Other Writings*, 255.

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- <sup>84</sup> Kenneth Frampton, 5.
- <sup>85</sup> Kenneth Frampton, "Rappel à l'ordre, the Case for the Tectonic" (1990). Republished by ed. Kate Nesbitt, 519.
- <sup>86</sup> Jesús María Aparicio Guisado, "The Dematerialization of the Wall, an Evolution of Tectonic," *Arquitectura* 310 (1997): 117.
- <sup>87</sup> Adolf Max Vogt, xi-xiv.
- <sup>88</sup> Robert Dell Vuyosevich, "Semper and Two American Glass Houses," in *The Glass House*, ed. Philip Johnson (New York: Pantheon Books, 1993), 170.
- <sup>89</sup> Rosemaie Hagg Bletter, "On Martin Frohlich's Gottfried Semper," *Oppositions* 4 (October 1974): 151.
- <sup>90</sup> Cornelis van de Ven, *Space in Architecture: the Evolution of a New Idea in the Theory and History of the Modern Movements* (Amsterdam: Van Gorcum Assen, 1978), 77.
- <sup>91</sup> Jesús María Aparicio Guisado 117. Guisado defines stereotomy and the tectonic as follows: "Stereotomy is connected with stone, with earth. This type of construction has a three-dimensional development which makes of the building or element a continuum of matter," on the other hand, tectonic construction is "developed in a two-dimensional way and the resulting building is a discontinuous matter within the space. In this case the building presents joints, which are the visible connection between the parts that make it up."
- <sup>92</sup> Carles Valhonrat, "Tectonic Considered, Between the Presence and the Abstract of Artifice," *Perspecta* 24 (1988): 133.
- <sup>93</sup> Carl Gottlieb Wilhelm Bötticher, "The Principles of the Hellenic and German Ways of Building with Regard to Their Application to Our Present Way of Building" (1846). Translated by Wolfgang Herrmann, *In What Style Should We Build?: The German Debate on Architectural Style* (Santa Monica: the Getty Center for the History of Art and the Humanities, 1992), 158.
- <sup>94</sup> Ibid.
- <sup>95</sup> Ibid.
- <sup>96</sup> Sergio Luis Sanabria, "From Gothic to Renaissance Stereotomy: the Design Methods of Philbert de l'Orme and Alonso de Vandelvira," *Technology and Culture* 30, no.2 (1989): 266-268.
- <sup>97</sup> Gottfried Semper, *Style in the Technical and Tectonic Arts, or, Practical Aesthetics*, trans. Harry Francis Mallgrave and Michael Robinson (Los Angeles: Getty Research Institute, 2004), 758-766.
- <sup>98</sup> Op.cit., 761.
- <sup>99</sup> Gottfried Semper, "On Greek Slingshot Missiles" (1854), fol.5. Trans. by Wolfgang Herrmann, 142.
- <sup>100</sup> Gottfried Semper, *The Four Elements of Architecture and Other Writings*, 253.
- <sup>101</sup> Ibid.
- <sup>102</sup> Wolfgang Herrmann, *Gottfried Semper: In Search of Architecture*, 147-149.
- <sup>103</sup> Gottfried Semper, *Style in the Technical and Tectonic Arts, or, Practical Aesthetics*, 371.
- <sup>104</sup> Karl Bötticher, *Die Tektonik der Hellenen* (1852), vol. 1, 98. Trans. by Wolfgang Herrmann, 146.
- <sup>105</sup> Karl Bötticher, *Excursus* 2, 27. Trans. by Wolfgang Herrmann, 147.

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- <sup>106</sup> Eduard F. Sekler, "Structure, Construction, and Tectonics," in *Structure in Art and in Science*, ed. Gyorgy Kepes (New York: George Braziller, 1965), 89-95.
- <sup>107</sup> Kenneth Frampton, "The Glass House Revisited," in *The Glass House*, ed. Philip Johnson (New York: Pantheon Books, 1993), 93-105; Robert Dell Vuyosevich, "Semper and Two American Glass Houses," in *The Glass House*, ed. Philip Johnson (New York: Pantheon Books, 1993), 163-171; Jesús María Aparicio Guisado, "The Dematerialization of the Wall, an Evolution of Tectonic," *Arquitectura* 310 (1997): 116-119.



## CONCEPTS OF THE ART OF BUILDING (*BAUKUNST*) OF MIES

The art technical journals that were formerly focal points for artistic life have, due to their purely aesthetic viewpoints, failed to take note [of it –crossed out] of the development of the modern building art away from the aesthetic to the organic, from the formal to the constructive. . . . The character of our time must be conveyed by our building. We want to shape the form of our buildings out of the nature of the task, but with the means of our time.<sup>2</sup>

One may then infer that Mies rejected “any aesthetic speculation, any doctrine and any formalism”<sup>3</sup> because he was sure that the art of modern building had developed “away from the aesthetic to the organic, from the formal to the constructive.”<sup>4</sup> According to Mies, the art of modern building “refused to play a mere decorative role”<sup>5</sup> typical of the European aesthetic traditions of previous centuries, which Mies regarded as the domain of art historians rather than that of architects. Mies argued that modern architects, instead of producing decoration, should create the form of modern buildings out of “the nature of the task, but with the means of our time.”

His assertions on the art of building seem simple and general at first glance, but it indicates a strong relationship with his concept of clear construction. To clarify this connection, one should first analyze the meanings of “the nature of the task” and “purpose” through his writings and lectures. In a December 1923 lecture, “Solved Tasks: A Challenge for Our Building Industry,” Mies contrasted “the elementary and purposeful”<sup>6</sup> concepts of building with European historical and aesthetic concepts by illustrating buildings outside the Greco-Roman culture, such as an Indian tent, a leaf hut, an Eskimo house, a snow hut, the Eskimo summer tent, the castles of the counts of Flanders and Ghent, a farm complex, and the Emperor (a floating apartment building).

Mies, in an argument that “dwellings clearly formed in response to need and material,”<sup>7</sup> implies that the nature of the architect’s task is elementary and purposeful, not historical and aesthetic. For Mies, new architecture should not be based on sophisticated armchair criticism but on the practical purpose of building.

In September 1923, after he proposed the art of building, Mies again stressed the importance of the act of building itself in new architecture:

It is our specific concern to liberate building activity [*Bauerei*] from aesthetic speculators and make building [*Bauen*] again what alone it should be, namely BAUEN.<sup>8</sup>

While Kenneth Frampton defined this declaration as “a tectonic proposition rather than a gratuitous aesthetic speculation,”<sup>9</sup> Edward R. Ford, disagreeing with Mies and saying that aesthetic decisions are unavoidable in architectural design, continued as follows: “The simplest steel frame can probably not be erected without some decision in which aesthetics plays a part. When this frame is clad, however, aesthetic decisions become mandatory. The cladding must emphasize certain aspects of the structure while concealing others. . . . If this is not aesthetic speculation, what then is?”<sup>10</sup> From Ford’s point of view, architecture is subject to aesthetic speculation in every building decision. The dictionary meaning of speculation is “theory reached by conjecture,”<sup>11</sup> far from the meaning of the practice based on fact and experience. Mies clearly suggested a new direction of architecture by focusing on the “practice of building [*Bauerei*].”<sup>12</sup>

Surprisingly, Mies still discussed the concepts of building and the art of building in 1958, when he actually had already accomplished his architectural masterpieces. Mies, clearly distinguishing the art of building from architecture, stressed the importance of the

meaning of building:

We are only interested in building. We would rather than “architecture” use the word “building” and the best results would belong to the “art of building.”<sup>13</sup>

According to Peter Carter, “*Baukunst* (the art of building)” conveys the clear idea of Mies’ philosophy of architecture: “the ‘*bau*’ being the construction and ‘*kunst*’ just a refinement of that and nothing more.”<sup>14</sup> Mies defined the fundamental characteristic of his architecture using the term of the art of building, which may be called Miesian tectonics, because of the following two reasons. First, Mies established his own philosophy of new framing architecture (the concept of framing architecture will be discussed in Chapter 4: Concepts of the Skin and Bone Structures) on the basis of the idea of construction. Then, tectonics etymologically signifies the art of framing construction, as Chapter 2 defined tectonics. Mies referred to two levels of good architecture: wonderful prosaic architecture for normal day-to-day purposes and really good poetic architecture beyond the form of prosaic architecture:

Architecture is a language having the discipline of a grammar. Language can be used for normal day-to-day purposes as prose. And if you are very good at that you may speak a wonderful prose. And if you are really good you can be a poet.<sup>15</sup>

One can interpret Mies’ comparison as follows: In order to reach the level of poetic architecture, a building should be designed on an order that goes beyond the prosaic order. His poetic level of buildings implies the art level of spatial forms beyond material construction and functional forms. Actually, Mies created his own poetic form of architectural space, which this dissertation refers to clear space enclosed with all glazed exterior walls and established on systems totally different from normally purposeful

space enclosed by solid walls. Thus, the meaning of poetic is interpreted as including spatial concepts, distinguished from the general concepts of visual art and aesthetics. (Further details are described in Chapter 6.3: Lao-tzu's voids and Mies' "Almost Nothing.") Poetic construction was to the art of building (that is, in cases in which an architect gets "the best results") what practical construction was to ordinary buildings.

In brief, Mies' concept of the art of building may be called Miesian tectonics signifying poetic construction. Therefore, in response to the argument by Ford: "If this is not aesthetic speculation, what then is?", this study suggests a different point of view: that the art of building does not originate from aesthetic speculation but from poetic construction. Having no relationship to Mies' art of building, Kenneth Frampton defined the general meaning of the term tectonic as the poetics of construction, as suggested in the title of his book, *Studies in Tectonic Culture: the Poetics of Construction in Nineteenth and Twentieth Century Architecture*, in which he sought the etymological relationship between the tectonics and the poetics of construction. Frampton, relating the concept of Greek *tekton* to the poetic connotation of the term that "first appears in Sappho, where the *tekton*, the carpenter, assumes the role of the poet,"<sup>16</sup> defined the meaning of tectonic as the revelation of something metaphysical through the "act of making."<sup>17</sup>

Although both the tectonics of Frampton and the art of building of Mies imply poetic construction separate from "the figurative origins" in "an arbitrary dimension,"<sup>18</sup> their deeper meanings differ. While Frampton focused on "the structural unit as the irreducible essence of architectural form"<sup>19</sup> in tectonic discussion, Mies proposed a wider vision of architectonics by raising the issue of glassy materiality. Actually, Mies used the

terms, architectonic and tectonic, in his manuscript of 1933, which implied the existence of a “constructive appearance exposing the skeleton structure” rather than structural units themselves:

The glass skin, the glass walls alone permit the skeleton structure its unambiguous constructive appearance and secure its architectonic possibilities. Nor only in the large functional structures. . . . They are genuine building elements and the instruments of a new building art.<sup>20</sup>

He described the glass skin and walls as the “instruments of a new building art,” as only they, not the structural elements themselves, clearly exposed the overall constructional context. Mies argued that “construction has to be the basis of the building art”<sup>21</sup> in another note, and thus, he revealed the meaning of tectonic as lying within the concept of construction.

Mies referred to the idea of structure in the issue of tectonics. However, while Mies’ tectonics covered the whole constructive appearance combined with the structural and glassy components, his concept was more comprehensive than Frampton’s, which suggested structural form itself as a crucial issue in tectonic debates. Mies’ art of building, revealed his constructional intention based on a physical and metaphysically conscious whole at the same time rather than on the fragmentary logic of structure. Mies did not intend the rational expression of structure when he emphasized the purpose of building:

The purpose of a building is its actual meaning. The buildings of all epochs served purposes, and quite real ones. These purposes were, however, different in type and character. The purpose was always decisive for the building. It determined the sacred or profane form.<sup>22</sup>

When Mies argued that “the purpose [*Zweck*] of a building is its actual meaning,” according to Adrian Forty, Mies’ use of the term *Zweckmässigkeit*, not *Sachlichkeit*, clarifies that he is referring to “the expression of purpose, not to the rational expression of construction.”<sup>23</sup> The German word *Zweck* signifies “the fulfillment of immediate material needs--utility, but also in the sense of inner organic purposes, or destiny,”<sup>24</sup> while *Sachlichkeit* reminds us of the German debate in the 1880’s and 1890’s about structural realism implying “the expression of the mechanics of structure.”<sup>25</sup>

In Mies’ manuscript above was a concrete explanation of Mies’ purpose of a building: The purpose determined the sacred or profane form. Mies argued that the purpose of a building is not arbitrary in a case of profane forms, which include “skyscrapers, office buildings, commercial structures,” and “residential buildings.”<sup>26</sup> The purpose of such forms is simple and clear, so they can be formulated and clearly solved. According to Mies, outdated forms such as buildings encased with massive stone walls are “nonsense,”<sup>27</sup> so the combination of glass and concrete or that of glass and metal should be considered as proper materials corresponding “best to present-day purposes.”<sup>28</sup> Anticipating that the characteristics of the industrialized material of building would be “firm, weather-resistant, and sound and temperature insulating,”<sup>29</sup> Mies emphasized in his article of 1924, *Industrial Building*, that “it will have to be a lightweight material,”<sup>30</sup> determining the method of construction within an assembly type.

According to Mies, the form of a profane building was derived from a constructive formulation while that of a sacred building was “chosen.”<sup>31</sup> He clearly distinguished the sacred form from the profane, arguing that “he who builds a factory as if it were a temple lies and disfigures the landscape.”<sup>32</sup> Although Mies did not apply a

standardized method to the sacred building, he still refused to believe that the sacred building relied upon “the spiritual associations of a traditional fashion”<sup>33</sup> through decorative methods. He asserted that the sacred building should identify itself by taking advantage of the means of its time, which implies that the sacred building should also be considered architecturally autonomous based on industrialized constructional ways. Mies was conscious of the new constructional means of his time, on the basis of which he attempted to create a new art of building.

Mies’ formulation of industrialized construction is more properly applied to the profane form, which Mies called clear construction. Responding to Norberg-Schulze’s question “What do you understand by ‘clear construction’?”, Mies answered as follows:

We explicitly say clear structure because we want a regular construction which can be adapted to the present-day demand for standardization.<sup>34</sup>

According to Mies, the nature of new profane architecture was based on standardization and industrialization, that is, the means of our time, as he stated the start point of his building art:

For only where the building art leans on the material forces of a period can it bring about the spatial execution of its spiritual decisions.<sup>35</sup>

When Mies stated material forces, they signified the industrialized constructional methods assembled with light and standardized materials. In Mies’ art of building, material forces became the prerequisite for spiritual decisions that imply architects’ conscious intentions in creating new spatial forms. Mies’ statement above is similar to the tectonics of Mitchell Schwarzer when he stated, “unlike philosophical aesthetics, the discourse on tectonics defined architectural beauty as proceeding from utility to art and



not the reverse.”<sup>36</sup> Mies emphasized that architects should consciously use the means of their time in the creation of the new art of building, as he was firmly convinced that standardized constructional methods would open new potential of spatial art.

Mies produced his own constructional type that reveal a new spatial art by adopting the art of building, composed of the practical aspect of construction and the conscious aspect of space. Thus, his art of building is a theory on the basis of which Mies succeeded in creating his construction that contains clear space. Mies’ clear space or his free plan originated from his clear construction as he explained as follows:

The free plan and a clear structure can not be kept apart. A clear structure is the basis for the free plan.<sup>37</sup>

In contrast to Edward R. Ford, who argued “there is little if any correspondence between the writings and the buildings”<sup>38</sup> of Mies, the proceeding chapters will substantiate that Mies’ art of building does not remain a simple theory, but it is embodied as an actual construct, and illustrate how Mies accomplished his own form of clear construction containing poetically clear space, the final goal of his art of building.

### **3.2 Two Periods of Critical Awareness**

Answering the question “Has any one year particular significance in the development of the modern world?”<sup>39</sup>, Mies designated 1926 the year of “great realization or awareness,”<sup>40</sup> in which “the understanding of certain situations ripens.” He continued, saying that “great people who may never know each other can talk, simultaneously, about the same things.” According to Mies, it took him “a long time to

understand the relationship between ideas and between objective facts,”<sup>41</sup> because initially his awareness was “more of an instinctive drive” and later on became “more and more a conscious awareness.” The question arises as to what “the same things” both great modern architects and Mies were aware of in the development of modern architecture.

From 1925 to 1927, Mies, as the artistic director of the Weissenhof Housing Colony in Stuttgart, formulated a master plan of this project, contacting pioneering modern European architects such as Walter Gropius, Hans Scharoun, Richard Döcker, Peter Behrens, Hans Poelzig, Ludwig Hilberseimer, Adolf Schneck, Adolf Rading, Max Taut, Bruno Taut, J. J. P. Oud, Mart Stam, Josef Frank, Victor Bourgeois, and Le Corbusier. The theme of the Housing Colony was the modern home, the only requirement being the use of the flat roof.<sup>42</sup> On July 29, 1926, the Stuttgart City Council approved their building plans.<sup>43</sup> Franz Schulze asserted that the meaning of the Weissenhof construction was to demonstrate “the fullest communal realization of the new art of building.”<sup>44</sup> In a similar context, Wolf Tegethoff interpreted Mies’ crucial realization or awareness in terms of the “practical application of his own architectural principles.”<sup>45</sup> Besides organizing the overall master plan, Mies designed the Weissenhof Apartment House, his first steel-skeletal structure enclosed with load-free walls; that is, it was a tectonic construction based on the industrialized process of building.

Mies recognized that the practical constructional situation was more complicated in reality than his ideal concepts of the new art of building defined in 1923. Mies comprehended the constructional reality of the modern situation, admitting that the role of architects was limited and in 1927 confessing as follows:

The organizational problem cannot be solved without the cooperation of the

building trades. This was completely impossible in Stuttgart as we had no authority over the letting-out contracts. This also deprived us of exercising control over the quality of execution. We were really independent only in regard to spatial problems, which means questions in respect to the actual building art.<sup>46</sup>

In the process of this tectonic construction free of bearing walls, for which Mies employed a steel skeleton, he seemed more profoundly aware that architects could realize the new art of building by devoting their concerns to spatial problems. In an unpublished manuscript of 1927, Mies argued that “only where the building art leans on the material forces of a period can it bring about the spatial execution of its spiritual decisions. But that is actual meaning and it has never been otherwise.”<sup>47</sup> As Mies referred to “material forces of a period” in 1927 while practicing a lightweight framing building in Stuttgart between 1925 and 1927, one can naturally interpret the meaning of that statement as light tectonic construction newly borne on the basis of industrialization, which left new spatial tasks to architects. Although economic problems including rationalization and typification are a major concern in construction, Mies maintained as follows:

Next to them, or rather above them, stands the spatial problem that can only be solved by creativity rather than calculation or organization.<sup>48</sup>

The structure of the Weissenhof Apartment House was not exposed, and its size was too small to fully accommodate spatial openness (Figure 3.1). However, through the actual experience of light construction of his apartment house, Mies was aware of spatial execution as a central issue in the realization of his art of building, and thereafter focused on the development of an open plan. Among the open plans in the Weissenhof Housing Colony, Franz Schulze evaluated Le Corbusier’s single-family house (Figure 3.2) as a

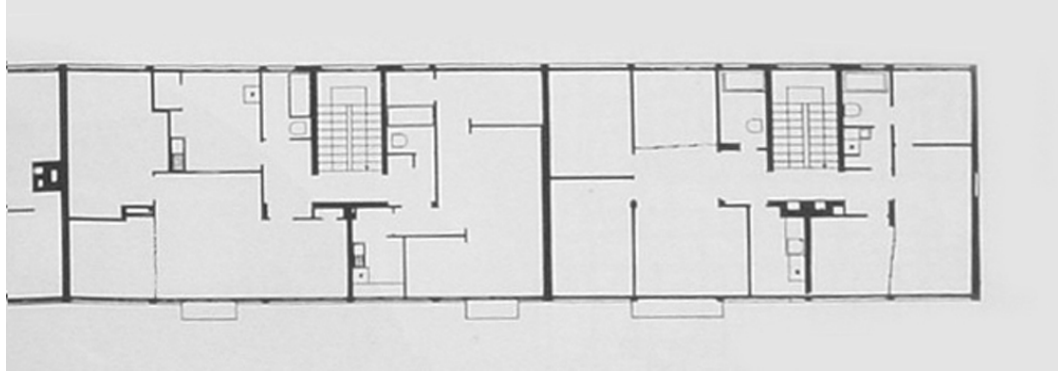


Figure 3.1 A part of the third-floor plan of the Weissenhof Apartment House, *Die Wohnung* (the dwelling) Exhibition, Stuttgart, 1926-27

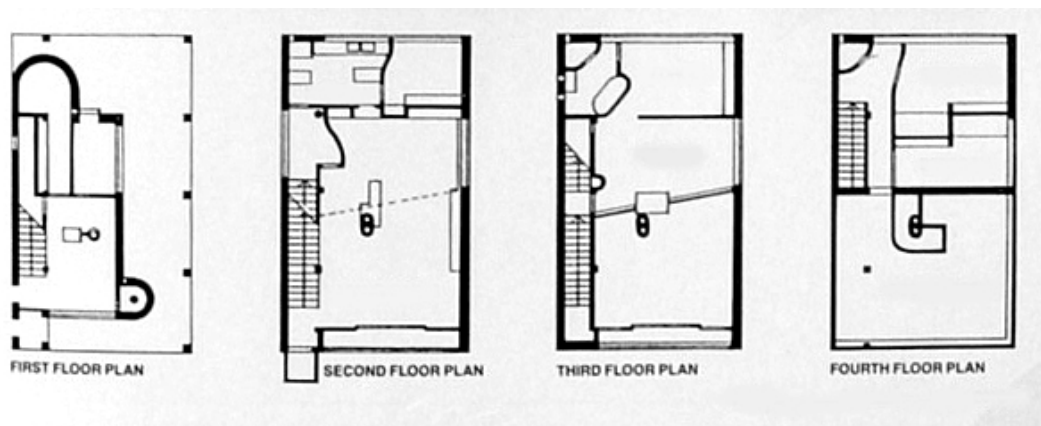


Figure 3.2 Floor Plans of the Le Corbusier's Single-Family House, *Die Wohnung* (the dwelling) Exhibition, Stuttgart, 1926-27

totally open plan and vertically unimpeded, in that its openness rises two stories, in contrast to Mies' apartments, which are a "somewhat cautious endeavor."<sup>49</sup> Accordingly, when Mies, having experienced Le Corbusier's spatial openness in person,<sup>50</sup> said that great people simultaneously concentrated on the same things, the same things naturally imply spatial openness and open plan. In this view, Mies' words "great realization or awareness" can be interpreted from the material and spatial aspects of his art of framing

construction: Having realized tectonic construction with lightweight materials, Mies was aware of a more active attitude towards an open plan enclosed within a framing structure. Fritz Neumeyer also claimed that Mies' "flexible floor plan" began with his Stuttgart experiment.<sup>51</sup> The Glass Room (Figure 5.11), which Mies designed together with Lilly Reich at the Stuttgart Werkbund Exhibition of 1927, contained a hall as an open plan, divided into three areas for working, living, and dining, partially by glass freestanding walls. Although it is true that the open plan of the Weissenhof Housing Colony was less intense than the free plan of Le Corbusier, Mies' open plan of it was original, because the approaches of these two modern masters are different. Mies' open plan consists of a more continuous space from the inside to the outside through light construction developed into a full glazed skin in his later buildings, while Le Corbusier's free plan focuses more on visual aesthetics representing the sculptural qualities of inner vertical space mediated by stairs. These different features between the open plans of Mies and the free plan of Le Corbusier are clearly evident in their later works of architecture. Mies' open plans became more and more extroverted to the outside nature while Le Corbusier's free plans more and more revealed the aesthetic quality of vertically interior space.

In 1926, Mies, grasping German constructional reality through his practice in Stuttgart, was aware of the importance of the open plan in new architecture and attempted to create various kinds of open plans. This dissertation categorized his open plans after 1926 into three attitudes towards space design, which the author calls flowing space, dynamic space, and clear space. By "flowing space" one means a continuously connecting space, in which neighboring rooms are open to each other, leading to an open view limited within a single frame of the masonry exterior wall. Whether inner walls are

made of load-bearing or non-load-bearing, their surfaces in the flowing space are painted rather than exposing their own wall materials in order to simply emphasize the flow of space. In the process the traditional arrangement of cellular rooms is abandoned. By “dynamic space,” one means an open plan characterized by a complementary contrast between interior material freestanding walls and exterior full glazed walls. In Mies’ dynamic space, one can experience dynamic forces simultaneously at different levels of the material and spatial arts of construction, as the freestanding walls in dynamic space not only reveal their natural materiality with a sleek finish but also they are dynamically configured in an bright open plan enclosed by one- or two-sided exterior glazed walls (Figure 6.16). By “clear space” one means a single uncluttered volume enclosed by glazed skin, and thus, the building is literally clear from both the inside and the outside. As the space is clear, one can from the outside experience simultaneously three layers of space: exterior space in which the viewer stands, clear interior space, and another exterior space beyond the building (Figure 6.17).

In the design of the brick houses, Mies devoted his concerns of an open plan to the development of flowing space that connected inside spaces and opened them up to the landscape outside. Mies had already attempted this type of space in the Brick Country House project of 1924, abandoning the existing concept of enclosed rooms and newly creating “a series of spatial effects”<sup>52</sup> as Mies asserted, by producing space that led continuously from one to another. Although Mies had intended his open plan before his 1926 awareness, the flowing type of space was enclosed by solid brick walls that protect inner space rather than extend to the landscape outside. On the other hand, between 1928 and 1930, in the Barcelona Pavilion and the Tugendhat House, he realized dynamic space

by locating free standing walls in interior spaces and glass plate walls between the interior space and exterior spaces. After his 1926 awareness, the big change of Mies' open plan was the replacement of the exterior wall by glazing walls in full height. In the larger projects of commercial buildings, Mies developed clear spaces in a more practical way than his did in the projects of the Glass Skyscrapers of 1922 and the Office Building of 1923 by producing the images of the curtain-wall system.

In the Hermann Lange House and the Esters House of 1927-1930, Mies still employed a load-bearing brick wall instead of light framing material but developed spatial openness, which he considered as the essential task of modern architects. The conspicuous distinction between the Wolf House of 1925-1927 (Figure 3.3), which was designed before the Stuttgart project, and the Lange and the Esters Houses (Figure 3.4) derived from spatial openness enhanced by the room-high openings inside and the large span of the outside openings. Windows and doors, framed by the thin steel sash of the Lange and the Esters Houses rather than the wider traditional wood sash of the Wolf House,<sup>53</sup> provided a more open view with a lighter impression of the wall. The stout section of the cantilevered beam in the overhanging roof of the Wolf House disappeared in these two houses, in which sophisticated steel structures such as steel beams, brackets, bracings, and lintels, were concealed but used to make massive brick walls appear as weightless screens.

Despite the realization of the visually maximum weightlessness of the wall and the spatial extension to the outside, Tegethoff attributed Mies' refusal of the publication of the Lange and the Esters Houses to a "contradiction"<sup>54</sup> of the use of traditional massive material opposite to the weightless appearance of the houses. Mies' brick houses



Figure 3.3 Exterior view of the Wolf House, Gubin, 1925-27



Figure 3.4 The Exterior view exposing the interior flowing space of the Hermann Lange House, Krefeld, 1927-30



of 1927-1930 cannot be considered completely new buildings compared with those of Mies' later career, not only because of their use of load-bearing material incongruent with his concept of skin and bone construction, but also because of the low spatial identity of Mies' open plan. Evidence for this point of view can be found in the cases of the Barcelona Pavilion of 1928-1929 and the Tugendhat House of 1928-1930, in which he produced dynamic<sup>55</sup> space by creating the freestanding onyx wall in space. (Further details are described in Chapter 5: "Concepts of the Freestanding Onyx Wall.") After the Brick House project of 1923, Mies attempted to create freestanding walls that played a major part in creating an open plan, but many critics argued in favor of Wright or De Stijl's compositional approach to freestanding walls. Mies, regarding the material freestanding wall in his open plan as a crucial concept for new architecture, attempted to create his own form of space. Finally, during the study of the Barcelona Pavilion, his new principle of the freestanding onyx wall was realized. This study now refers to it as the Miesian freestanding wall because Mies obtained his own identity in new architecture by creating his unique freestanding onyx wall. Although the material freestanding wall played a major role in his interior space, Mies did not maintain the character of his own dynamic space, but his concern of his open plan moved to clear space after 1930. While the material effects (further details are described in Chapter 5) of Miesian dynamic space were embodied in the Barcelona Pavilion, the void effects (further details are described in Chapter 6) of Miesian clear space were created in the Resor House Project of 1938, established in the Farnsworth House of 1945-1950, and afterwards developed more consistently in other buildings containing the maximally undetermined use of space.

In summary, beginning with his practice in Stuttgart, Mies recognized that the

open plan was a way to establish a new architecture, and thus, he developed it between 1927 and 1930 into three forms of space, which are generally referred to as flowing space, dynamic space, and clear space. While Mies' flowing and dynamic space weakened after 1930, his clear space, beginning in 1922 with the Skyscraper project, from the unconscious idea of space simply enclosed by an exterior skin and bone structure, consciously developed after 1930 into the idea of inner built space consciously extended to the view outside. This dissertation argues that the source of Mies' conscious stress of void space in his clear space came from his understanding of Lao-tzu's voids, because the period in which Mies began to focus on the full open view of the outside as a potential element (further details are described in Chapter 6.1) in his design corresponds to a period when Mies may have become well acquainted with the concept of Lao-tzu's void space after meetings with Karlfried Graf Dürckheim around 1930.

After the Skyscraper project of 1922, Mies continually attempted to realize skin and bone buildings by employing lightweight construction. By using light material, especially glass, as the skin of buildings in the urban project of commercial buildings, Mies produced virtual images located among the existing urban context. During 1928 and 1929, Mies designed a plan for the Alexanderplatz and three commercial buildings, the Adam Building, the Stuttgart Bank, and the second Friedrichstrasse Office Building. These four designs were never realized, but they serve as evidence of the gradual changes in Mies' skin and bone principle in Germany; these were his tectonic buildings based on the art of framing construction and a part of the evolution from merely structural concepts to the potentially clear space of later buildings in America. For example, the Concrete Office Building of 1923 (Figure 4.1) and the Adam Building of 1928 (Figure 3.5)



Figure 3.5 The photomontage of the S. Adam Department Store Project, Berlin-Mitte, 1928-29

revealed a move from a structural issue (how to build a bone structure) to a spatial issue (how to create clear space) reflected in Mies' following two statements about these projects:

Supporting girder construction with a nonsupporting wall. That means skin and bone structures. . . . A double-shafted frame of 8m span-wide with 4m long lateral cantilever brackets on either side. . .<sup>56</sup> ("Office Building," 1923).

The variability you want is best by an undivided expanse of the individual floor levels; for that reason I have placed the supports in the exterior walls. . . . You

need layered floor levels with clear, uncluttered spaces<sup>57</sup> (“The Adam Building,” 1928).

Although Mies’ concerns after his awareness of 1926 matured from a reasonably structural principle to an actual material effect<sup>58</sup> of an embodied curtain-wall system, Mies remained devoted to the spatial issue of clear, uncluttered or undivided<sup>59</sup> space, or generally speaking, universal space structured by a modular grid, neutrally enclosed with a glazed skin for unitarily and maximally undetermined space. At this point, Franz Schulze argued that “evidence of the American Mies”<sup>60</sup> is discernible through his urban projects of commercial buildings during 1928 and 1929. Mies further developed his idea of clear space not only by creating “neutral and generalized”<sup>61</sup> space but also by satisfying the spatial requirements of “undivided expanse”<sup>62</sup> for the flexibility of space and the continuity between inside and outside spaces.

In general, critics who call Mies’ space universal space discuss the issue of undivided expanse in terms of functional purpose, enabling the flexible use of inner space, but one will find the spiritual aspect of Mies’ clear space through the following analysis of his statements. In 1924, Mies stated different aspects of his building art:

Building art as spatial expression is spiritually connected to its times.<sup>63</sup> (A lecture, 1924)

The industrialization of building constitutes the core problem of our time. If we are successful in carrying out this industrialization, then the social, economic, technical, and even artistic questions will solve themselves.<sup>64</sup> (Magazine G, 1924)

At first glance, although these two issues of spiritually spatial expression and materially industrial construction appear to be contradictory, Mies mentioned his ambivalence

throughout his entire career, emphasizing in his art of building the importance of industrialization, which provided practical utility that established clear construction. At the same time, however, he created spatial effects reflecting his consciousness of new constructional environment. Mies explained this seeming contradiction of his point of view as follows:

Mechanization can never be [a] goal, it must remain means. Means toward a spiritual purpose. While we want to stand with both feet firmly on the ground, we want to reach with our head to the clouds.<sup>65</sup>

Space, although invisible, exists, like intangible clouds. In the same way, Mies understood that spirituality or consciousness of space was essential in his art of building, thus dividing the development of building into two domains: “building for life in a general sense”<sup>66</sup> and “building art” for “spiritual atmospheres that we perceive as characteristic cultures.”<sup>67</sup> The art of building is not a theory for the realization of formal and functional problems, but as he asserted, for “the spatial execution of spiritual decisions.” This study argues that his art of building stood firmly on the ground of industrialization, but simultaneously, revealed a new consciousness of Mies, who realized a new type of space, that is, clear space based on industrialized framing construction. He did not actually use the term, universal space, but typically referred to it as an “open room,”<sup>68</sup> “open plan,”<sup>69</sup> “free plan,”<sup>70</sup> and “clear, uncluttered spaces”<sup>71</sup>: the last term signifies not only the undivided volume of interior space but also the undifferentiated expanse between interior and exterior spaces.

Mies did not simply create functionally free use of space in the clear space of his open plan, but went beyond it, creating a new idea of a “changing background.”<sup>72</sup> Mies

attempted to draw in the life of nature outside as a changing background for the artifacts inside, as he did not intend his Museum for a Small City of 1942 to be “the interment of art,”<sup>73</sup>. Mies embodied this intention with the steel frame and basically with three elements of “a floor slab, columns and a roof plate.”<sup>74</sup> As one can see, the walls are not included in the basic elements, just as they are not in the free plan of Le Corbusier. What distinguished Mies from Le Corbusier is Mies’ material freestanding walls separated from the outer frame and his own notion of a changing background. The structure that physically confines the clear space is composed of a floor slab, a roof plate, and steel columns. A membranous skin located between a floor and a roof slab consists of glass, the transparency of which creates an undivided space between the inside and the outside. His concept of a defining space, which Mies described as his clear space, does not simply imply visual continuity but reveals that nature is a living element with which a building can be appreciated as a boundless and changing being beyond a physical structure that is fixed and dead.

In an interview for a BBC program, Mies explained, “you see the sky, and even the city, changing every hour. I think that is really new in our concept”.<sup>75</sup> This was Mies’ answer to the negative responses of his open-plan buildings. As the overall comment of Mies’ open plan, Graeme Shankland, the interviewer of the program, concluded as follows: “Here, not only does Mies reject the suggestion that the open plan can be a tyranny, but he claims for it not just the practical advantages of flexibility but a more important spiritual one of setting the scene for a ‘really new’ and profound relationship between man and nature in town and country.”<sup>76</sup>

In order to maximize the changing effect of space, Mies intentionally painted his

buildings with neutral colors that harmonized with the changing background of nature. His profound esteem for nature, reflected in his architectural design, may be evaluated as new in Western culture, but it reminds Far Eastern architects of the ancient philosophy of Lao-tzu, the originator of Taoism. Like Taoist painters, who experienced nature by immersing themselves in it in order to become one with nature before they drew pictures, Mies, referring to the Hubbe House of Magdeburg in 1935, stated as follows:

Toward the river the house is entirely open and melts into the landscape. Thereby I not only entered in the situation but obtained a beautiful alternation of quiet seclusion and open spaces.<sup>77</sup>

Before the publication of the *Tao Teh King*, found in Mies' personal library, it is almost impossible to believe that Mies had not been informed of Lao-tzu's philosophy of the void (i.e., potential empty space) through his association with Karlfried Graf Dürckheim (1896-1988) in the Bauhaus. (Details are described in Chapter 1.) Cornelis van de Ven regarded Lao-tzu as a modern spatial thinker<sup>78</sup> who created three kinds of built space in his *Tao Teh King*. It was not until the late nineteenth century that theorists were aware of architectural space and the beginning of the twentieth century that pioneering architects developed the idea of space in their buildings. Therefore, this study proposes that Mies, who also attempted to create an innovative spatial concept, approached Lao-tzu's philosophy of void in terms of architectural space, applied it to his clear space and gave a potential meaning to it. Mies' clear space is more organizationally discussed in Chapter 6: "Concepts of Clear Space of Mies Employing Lao-tzu's Void."

### 3.3 Existing Points of View on Mies' Structure

Mies often used the term structure in describing his buildings, so many critics have debated the concept of structure, relating it not only to the buildings of Mies' later period in America but also to the Barcelona Pavilion. Applying the formulation composed of several load-bearing columns and the structurally free-standing wall to that of the Barcelona Pavilion, Robin Evans raised the issue of the structural ambiguity of the building: "Either the walls are interfering with the roof, or the columns are interfering with the walls. When you look at the pavilion instead of its plan, when you see those little steel posts, cruciform and cased in chrome so as to dissipate their meagre substance into attenuated smears of light, you cannot seriously regard them as the sole means of support (which they are not), or even as the principal means of support (which they are). Considered thus, they do indeed look 'dangerous.'"<sup>79</sup>

Evans, arguing against an interpretation that "his lifelong concern was with the logic of structure and its expression" in terms of rational structure, asserted that "if Mies adhered to any logic, it was the logic of appearance."<sup>80</sup> Evans tried to interpret the structural ambiguity of the Barcelona Pavilion in terms of visual art focusing on appearance, establishing the logical basis of his own discovery in an article "Mies van der Rohe's Paradoxical Symmetries" (Figure 3.6), by devaluating the characteristics of Mies' material effect and considering his material simply reflective and flat. The more he emphasized reflective symmetries in the Barcelona Pavilion, the more simply the different materiality of stony walls, glass, and water was reduced to the abstract. In order to overcome structural illogic, Evans posited another logic for visual symmetries, but





Figure 3.6 Horizontal symmetries of the Barcelona Pavilion, 1928

this way of thinking tends to abstract the vividly physical tactility of Mies' material. Although both glass and water are reflective materials, liquid water naturally produces a different material feeling from that of solid glass: One cannot feel wind on the glass wall itself but can sense it by perceiving the ripples on water. By not only ignoring material potential but also denying the solidity of the marble wall, Evans stated that "the walls of the pavilion ring hollow to the knuckles."<sup>81</sup> He understood architecture in terms of a visual illusion as if Mies' architecture might be intentionally used for "playing tricks with sight." He insisted that "appearance is never the whole truth, but it is true to itself, and it is made more evidently so by the visual arts, especially when they play tricks with sight."<sup>82</sup>

In contrast to the argument of Evans, that of Edward R. Ford exhibits an understanding of the structural contradictions of the Barcelona Pavilion in terms of material detailing. Ford asserted that "the Barcelona Pavilion is based on the materials themselves."<sup>83</sup> He interpreted the structural ambiguity of the building as involving "an

analogous structure.”<sup>84</sup> Mies wanted to reveal the solid materiality of expensive materials such as onyx, marble, ebony, bronze, and chromium. For the monolithic image of the marble freestanding walls, Mies inevitably conceived a layered system but he finished the both edges of them solid pieces. From the materially constructive point of view, not a literal but an analogous structural system was generated from the discrepancy between the combination of the tectonic structure of steel and the stereotomic materiality of the marble wall, the tectonic structure is based on framing construction and the stereotomic material signifies a massive continuum of solid material. Covering tectonically framing structures, the onyx and marble walls appear monolithic even though they are constructed



Figure 3.7 A solid edge of the onyx wall of the Barcelona Pavilion

in a layered system, Visitors may not perceive them as hollow, as Evans asserted, but rather as solid, as Mies manipulated details by locating the pieces of solid marble on the edges of the walls (Figure 3.7). Evidence that Mies intended to create a monolithic wall can be found in the Tugendhat House, in which his major onyx wall was monolithic. In order to seamlessly expose both sides of the wall, Mies conceived the details for the monolithic wall as different from those for the layered walls in the Barcelona Pavilion. Each piece of stone had to be precisely the same thickness and almost seamlessly jointed by the mortar pockets between the pieces. All fasteners were fixed only at the top and the bottom edges and concealed in the plaster ceiling and the concrete floor. These details, applied to the really monolithic wall, achieve a much thinner image of thickness than that of the layered wall.<sup>85</sup>

The monolithic marble walls in the Barcelona Pavilion do not appear massive because of the minimal thickness of seven inches (18cm) and the appearance of weightlessness, creating “the impression of movable screens,”<sup>86</sup> as Wolf Tegethoff described them. The subtle ambivalence between the solid materiality of stone and the impression of lightness similar to that of movable partitions might confuse logic-oriented viewers. This apparent contradiction also appears in the polished finishing of the marble wall: Mies intentionally created this ambivalent character between monolithic stability and the ephemerally reflective vicissitude of the wall. Chromium columns (Figure 3.8) also maintain the dual characteristics between the structural function of stability and the material effect of changing fantasy. From the point of view that relies solely on a supportive structure, the reflective columns might look unstable and dangerous, but the actual phenomenon generated by them provokes creative refreshment through which

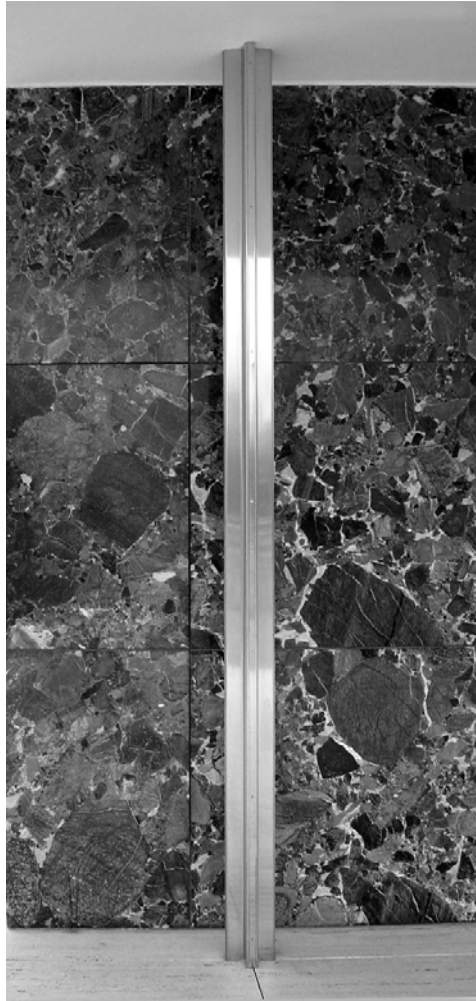


Figure 3.8 A column and a wall of the Barcelona Pavilion

visitors enjoy the complementary, yet contrasting nature of the supportive structure and the shining substance that obscures the concrete and ordinary function of the column. The characteristic materiality and finishing of the column and the wall produce a simultaneously vivid and harmonious impression that escapes the simple, cerebral logic of support.

One may also misunderstand Mies' duality in the writing of Wolf Tegethoff, who did not seem to recognize the meaning of structure and the material potential of Mies'

Glass Skyscraper project of 1922. According to Tegethoff, any version of this project did not suggest a concrete structural system; therefore, he argues “Mies’s clumsy attempts in the preliminary plan betray the fact that ‘the structural concept as the essential foundation of the artist’s design’ has not been seriously tackled at all, let alone solved.”<sup>87</sup> Tegethoff’s criticism of the structure of the Glass Skyscraper has a different meaning from that of Mies’ structure. According to Adrian Forty, modernists who use the term structure have confused one meaning as “the system of support,”<sup>88</sup> which assumes the notion of stability, with the other one as an invisible and intelligible schema of the relationship between parts. While Tegethoff interpreted Mies’ statement as “the structural concept as the essential foundation of the artist’s design,” Mark Jarzombek translated the same German phrase as “constructive thought, the necessary basis for artistic form-giving.”<sup>89</sup> From the whole context of Mies’ statement, he regarded constructive thought as an idea based on a physical construction rather than on a concrete supportive system. Regarding the discrepancy between his and some critics’ concepts of structure, Mies attempted to clarify his notion of structure as follows:

It is very difficult to stick to this fundamental construction, and then elevate it into a structure. I must make it clear that in the English language you can call everything structure. In Europe we don’t. We call a shack a shack and not a structure. By structure we have a philosophical idea. The structure is the whole, from top to bottom, to the last detail—with the same ideas. That is what we call structure.<sup>90</sup>

For Mies, the concept of structure signified, beyond a concrete logical system solving dynamic stability, an idea in which the material level of industrialized

construction was experienced at the philosophical level. Mies, viewing his art of building from a further standpoint of philosophy, also wanted his buildings to be appreciated on a higher level, as a whole. Therefore, Mies' art of building should not be interpreted as being fragmentarily logical but as maintaining a higher unity of the integrated, complimentary structural and material aspects, or the structural and the spatial on the basis of physical construction. In an interview, Mies argued as follows:

Yes, the structure is the backbone of the whole and makes the free plan possible.

Without that backbone, the plan would not be free, but chaotic and therefore constipated (1958).<sup>91</sup>

He did not explain structure in terms of an independent system for dynamic stability, but understood it as the interconnection of structure and clear space, noting Crown Hall and the Mannheim Theater as examples of the variable free ground plan that one generally refers to as Mies' universal space.

For Mies, the purpose of the structure served to create his clear space, so the objective of Mies' tectonics was not the structural frame itself but freely usable space. Connecting Mies' architecture to "tectonic constructs," Gevork Hartoonian related Mies to the "lawfulness" of modern tectonic genealogy while he related Le Corbusier to the aesthetic "appearance" of purism.<sup>92</sup> Recognizing the importance of Mies' space, Hartoonian defined his tectonics as Mies' own law to produce "a structural construct disclosing an empty space."<sup>93</sup> Empty space is generally considered neutral and blank but actually reveals atmosphere generated by not only the surrounding construct and the independent, interior wall of Mies but also the free development of the space that reflects the occupants' taste. Thus, Mies, anticipating the result of the architectural whole, always

left enough clear space for the occupants. Accordingly, his tectonics, or his art of framing construction, should be understood from a more comprehensive point of view that considers the undetermined aspect of clear space. With fragmentary logic based on either structural logic or visual art, one would fail to find more comprehensive principles running through Mies' overall architecture. Although it is true that many kinds of reflective symmetry, including horizontal symmetry, which Evans may discover anew, exist in the Barcelona Pavilion, it is only partially significant or insufficient to confirm the overall identity of Mies' architecture, as Evans himself confessed that "symmetry came and went in Mies's work."<sup>94</sup>

The previous chapter reviewed the existing concepts of architectural tectonics; this chapter attempted to interpret Mies' meanings of art of building and structure by researching his written and spoken statements. His buildings, revealing ambivalent aspects, caused a misunderstanding about his concepts of structure and tectonics, which were unclear due to the fragmentary visual logic in which his structure was often misunderstood as a supportive system. Thus, in order to assess Mies' art of building in terms of tectonics, one must first understand the concept of Mies' structure more comprehensively and clearly. In order to clarify this concept, the following chapter will discuss clear structure in the context of Mies' skin and bone structures.

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- <sup>1</sup> Mies van der Rohe, "Office Building," *G*, no.1 (July 1923): 3. Republished by Fritz Neumeyer, 241. The grammatically correct form of "building art" is "the art of building."
- <sup>2</sup> Mies van der Rohe, "Office Building," Manuscript (August 1923), Published by Fritz Neumeyer (1991), 241.
- <sup>3</sup> Mies van der Rohe, "Office Building," *G*, no.1 (July 1923): 3. Republished by Fritz Neumeyer, 241.
- <sup>4</sup> Mies van der Rohe, "Office Building," Manuscript (August 1923).
- <sup>5</sup> Ibid.
- <sup>6</sup> Mies van der Rohe, "Solved Tasks: A Challenge for Our Building Industry," *Die Bauwelt* 14, no.52 (1923): 719. Republished by Fritz Neumeyer, 243-245. See Appendix A.1.
- <sup>7</sup> Ibid.
- <sup>8</sup> Mies van der Rohe, "Building," *G*, no.2 (September 1923):1. Republished by Fritz Neumeyer (1991), 242.
- <sup>9</sup> Kenneth Frampton, *Studies in Tectonic Culture: the Poetics of Construction in Nineteenth and Twentieth Century Architecture* (Cambridge: The MIT Press, 1995), 161.
- <sup>10</sup> Edward R. Ford, "Ludwig Mies van der Rohe and the Steel Frame," *The Details of Modern Architecture* (Cambridge: MIT Press, 1990), 287.
- <sup>11</sup> *The American Heritage® Dictionary of the English Language*, (Houghton Mifflin Company, 2000), Fourth Edition.
- <sup>12</sup> Mies van der Rohe, "Building," *G*, no.2 (September 1923):1. Republished in *Mies van der Rohe* by Philip C. Johnson (The Museum of Modern Art: New York, 1978), 189. "Bauerei" is translated into the "practice of building" in this book: "Essentially our task is to free the practice of building from the control of aesthetic speculators and restore it to what it should exclusively be: building."
- <sup>13</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100.
- <sup>14</sup> Peter Carter, "Mies van der Rohe: An Appreciation on the Occasion, This Month, of His 75th Birthday," *Architectural Design* 31, no.3 (Mar. 1961): 96.
- <sup>15</sup> Mies van der Rohe, in Water F. Wagner, Jr., "Ludwig Mies van der Rohe: 1886-1969," *Architectural Record* 146 (Sept. 1969): 9.
- <sup>16</sup> Kenneth Frampton, *Studies in Tectonic Culture: the Poetics of Construction in Nineteenth and Twentieth Century Architecture* (Cambridge: The MIT Press, 1995), 3-4. "Greek in origin, the term tectonic derives from the word *tekton*, signifying carpenter or builder. . . . In Greek it appears in Homer, where it alludes to the art of construction in general. The poetic connotation of the term first appears in Sappho, where the *tekton*, the carpenter, assumes the role of the poet. In general, the term refers to an artisan working in all hard materials except metal. In the fifth century B.C. this meaning undergoes further evolution, from something specific and physical, such as carpentry, to a more generic notion of making, involving the idea of *poesis*."



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- <sup>17</sup> Kate Nesbitt, *Theorizing a New Agenda for Architecture* (New York: Princeton Architecture Press, 1996), 516. Kate Nesbitt explains that Frampton regards “poetic manifestation of structure” as the essence of architecture.
- <sup>18</sup> Kenneth Frampton, “Rappel à L’ordre, the Case for the Tectonic” (1990). Republished by Kate Nesbitt, 519: “While it is disconcerting to have to recognize that there may well be a fundamental break between the figurative origins of abstract art and the constructional basis of tectonic form, it is, at the same time, liberating to the extent that it affords a point from which to challenge spatial invention as an end in itself: a pressure to which modern architecture has been unduly subject. Rather than join in a recapitulation of avant-gardist tropes or enter into historicist pastiche or into the superfluous proliferation of sculptural gestures all of which have an arbitrary dimension to the degree that they are based in neither structure nor in construction, we may return instead to the structural unit as the irreducible essence of architectural form.”
- <sup>19</sup> Ibid.
- <sup>20</sup> Mies van der Rohe, “What Would Concrete, What Would Steel Be without Mirror Glass?” a Manuscript of 1933. Republished by Fritz Neumeyer (1991), 314.
- <sup>21</sup> Mies van der Rohe, Notes to Lectures, undated (around 1950). Published by Fritz Neumeyer, 327.
- <sup>22</sup> Mies van der Rohe, “Building Art and the Will of the Epoch,” manuscript (1924). Republished by Fritz Neumeyer, 246.
- <sup>23</sup> Adrian Forty, “Function,” *Words and Buildings-A Vocabulary of Modern Architecture* (New York: Thames and Hudson, 2000), 184.
- <sup>24</sup> Op.cit. 181.
- <sup>25</sup> Op.cit. 180.
- <sup>26</sup> Mies van der Rohe, Manuscript (February 1924). Published by Fritz Neumeyer, 247.
- <sup>27</sup> Ibid.
- <sup>28</sup> Ibid.
- <sup>29</sup> Mies van der Rohe, “Industrial Building,” *G* no.3 (June 1924): 8-13. Republished by Fritz Neumeyer (1991), 248-249. See Appendix A.1.
- <sup>30</sup> Ibid.
- <sup>31</sup> Mies van der Rohe, “A Chapel: Robert F. Carr Memorial Chapel of St. Saviour, Illinois Institute of Technology,” *Arts and Architecture* 70, no.1 (1953): 18-19. See Appendix A.1.
- <sup>32</sup> Mies van der Rohe, in his notebook of 1927-1928. Published by Fritz Neumeyer (1991), 275.
- <sup>33</sup> Mies van der Rohe, “A Chapel: Robert F. Carr Memorial Chapel of St. Saviour, Illinois Institute of Technology,” *Arts and Architecture* 70, no.1 (1953): 18-19.
- <sup>34</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, “Talks with Mies van der Rohe,” *L’Architecture d’aujourd’hui* 79 (September 1958):100.
- <sup>35</sup> Mies van der Rohe, Unpublished manuscript of 1927. Published by Fritz Neumeyer (1991), 262.
- <sup>36</sup> Mitchell Schwarzer, *German Architectural Theory and the Search for Modern Identity* (Cambridge: Cambridge University Press, 1995), 189.

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- <sup>37</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100
- <sup>38</sup> Edward R. Ford, 287.
- <sup>39</sup> Mies van der Rohe, "No Dogma," *Interbuild* 6 (June 1959): 10.
- <sup>40</sup> Ibid.
- <sup>41</sup> Op. Cit. 11.
- <sup>42</sup> Wolf Tegethoff, "From Obscurity to Maturity: Mies van der Rohe's Breakthrough to Modernism," in *Mies van der Rohe: Critical Essays*, ed. Franz Schulze (New York: The Museum of Modern Art, 1989), 75.
- <sup>43</sup> Mies van der Rohe, "Introductory Remarks to the Special Issue, 'Werkbundaussstellung: Die Wohnung'," *Die Form* 2, no.9 (1927): 257. Republished by Fritz Neumeyer, 261
- <sup>44</sup> Franz Schulze, *Ludwig Mies van der Rohe: a Critical Biography* (Chicago and London: The University of Chicago Press, 1985), 135.
- <sup>45</sup> Wolf Tegethoff, 65.
- <sup>46</sup> Mies van der Rohe, "Introductory Remarks to the Special Issue, 'Werkbundaussstellung: Die Wohnung'," *Die Form* 2, no.9 (1927): 257. Republished by Fritz Neumeyer, 261.
- <sup>47</sup> Mies van der Rohe, Unpublished manuscript of 1927, published by Fritz Neumeyer, 262.
- <sup>48</sup> Mies van der Rohe, "Introductory Remarks to the Special Issue, 'Werkbundaussstellung: Die Wohnung'," *Die Form* 2, no.9 (1927): 257. Republished by Fritz Neumeyer, 261.
- <sup>49</sup> Franz Schulze, 136-137.
- <sup>50</sup> Regarding Mies' respect for Le Corbusier in the Stuttgart exhibition, please refer to the following Mies' statement in "Extracts from Conversation Between Ronald Lewcock and Ludwig Mies van der Rohe" (in Appendix B):  
 RL: You spoke earlier of the Stuttgart exhibition. At that time you so greatly admired Le Corbusier that you gave him the choice of any site at the exhibition. Have you changed your judgment of him since?  
 MvdR: Oh, yes. I admired him very much. It is not possible until you were there to imagine the awe in which all European architects held Le Corbusier at that time. . .
- <sup>51</sup> Fritz Neumeyer, 179.
- <sup>52</sup> Mies van der Rohe, "Lecture," Unpublished manuscript, in Fritz Neumeyer, 250.
- <sup>53</sup> Regarding the different details of the exterior walls between the Esters (or the Lange) House and the Wolf House, the following authors also discussed: Kenneth Frampton in his *Studies in Tectonic Culture*, 163-167; Wolf Tegethoff in his *Mies van der Rohe: the Villas and Country Houses*, 58-63; Edward R. Ford in his *The Details of Modern Architecture*, 263.
- <sup>54</sup> Wolf Tegethoff, *Mies van der Rohe: the Villas and Country Houses* (New York: the Museum of Modern Art, 1985), 63.
- <sup>55</sup> Frampton expresses Mies' modern space as "spatial dynamism": Kenneth Frampton, *Studies in Tectonic Culture: the Poetics of Construction in Nineteenth and Twentieth Century Architecture* (Cambridge: The MIT Press, 1995), 167. Franz Schulze describes Mies' modern space as "the dynamism of space": Franz Schulze, *Ludwig Mies van der Rohe: a Critical Biography*, 146.

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- <sup>56</sup> Mies van der Rohe, "Office Building," *G* (1923), 3. Republished by Fritz Neumeyer, *The Artless Word: Mies van der Rohe on the Building Art*, translated by Mark Jarzombek (Cambridge: The MIT Press, 1991), 241.
- <sup>57</sup> Mies van der Rohe, Draft of a letter on the project for the Adam Building (1928). Published by Fritz Neumeyer, 305.
- <sup>58</sup> Mies van der Rohe, Draft of a letter on the project for the Adam Building (1928). Published by Fritz Neumeyer, 305. See Appendix A.1.
- <sup>59</sup> Mies van der Rohe, "Office Building," *G*, no.1 (July 1923): 3. Republished by Fritz Neumeyer, 241. "Bright wide workrooms, uncluttered, undivided, only articulated according to the organism of the firm." Mies van der Rohe, Draft of a letter on the project for the Adam Building (1928). "You need layered floor levels with clear, uncluttered spaces."
- <sup>60</sup> Franz Schulze, 152.
- <sup>61</sup> Franz Schulze, 147.
- <sup>62</sup> Mies van der Rohe, Draft of a letter on the project for the Adam Building (1928). Republished by Fritz Neumeyer, 305.
- <sup>63</sup> Mies van der Rohe, "Lecture" (An unpublished manuscript of 1924), Published by Fritz Neumeyer (1991), 250.
- <sup>64</sup> Mies van der Rohe, "Industrial Building," *G* no.3 (1924): 8-13. Republished by Fritz Neumeyer, 248.
- <sup>65</sup> Mies van der Rohe, Unpublished manuscript of 1924. Published by Fritz Neumeyer (1991), 250.
- <sup>66</sup> Mies van der Rohe, "Lecture" (An unpublished manuscript of 1926), Published by Fritz Neumeyer (1991), 253.
- <sup>67</sup> Ibid.
- <sup>68</sup> Mies van der Rohe, "The H. House, Magdeburg," *Die Schilgenossen* 14, no.6 (1935). Republished by Fritz Neumeyer (1991), 314.
- <sup>69</sup> Mies van der Rohe, "Museum for a Small City," *Architectural Forum* 78, no.5 (1943): 84.
- <sup>70</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100.
- <sup>71</sup> Mies van der Rohe, Draft of a letter on the project for the Adam Building (1928). Published by Fritz Neumeyer, 305.
- <sup>72</sup> Mies van der Rohe, "Museum for a Small City," *Architectural Forum* 78, no.5 (1943): 84.
- <sup>73</sup> Ibid.
- <sup>74</sup> Ibid.
- <sup>75</sup> Mies van der Rohe, Interview for the BBC program (1959), Reported in, *Mies van der Rohe at Work* by Peter Carter (London: Phaidon Press, 1999), 181.
- <sup>76</sup> Ibid.
- <sup>77</sup> Mies van der Rohe, "The H. House, Magdeburg," *Die Schilgenossen* 14, no.6 (1935). Republished by Fritz Neumeyer (1991), 314.
- <sup>78</sup> Cornelis van de Ven, *Space in Architecture: the Evolution of a New Idea in the Theory and History of the Modern Movements* (Amsterdam: Van Gorcum Assen, 1978), 8.

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- <sup>79</sup> Robin Evans, "Mies van der Rohe's Paradoxical Symmetries," *AA files* 19 (Spring 1990): 58.
- <sup>80</sup> Ibid.
- <sup>81</sup> Op. cit. 63.
- <sup>82</sup> Op. cit. 60.
- <sup>83</sup> Edward R. Ford, *The Details of Modern Architecture* (Cambridge: MIT Press, 1990), 273. Ford stated as follows: "What we see at Barcelona is an analogous, not a literal structure system, and it is the inevitable result of the layered system of building. Another explanation for the predominance of layered systems in the Barcelona Pavilion is based on the materials themselves. Mies loved expensive materials, such as onyx, marble, ebony, and bronze, and given their cost it is somewhat inevitable that he used them as veneers. To have made the walls of solid marble, or to chromium-plate the actual steel angles of the columns, would have been ridiculously expensive if not possible. Mies was careful, however, to preserve the appearance of a monolithic building. The last piece of each marble wall (and the short screen of onyx) is solid, so that the veins flow unbroken around corners and edges. Wagner, in contrast, exposed the edges of his veneers."
- <sup>84</sup> Ibid.
- <sup>85</sup> Edward R. Ford, 279.
- <sup>86</sup> Wolf Tegethoff, "From Obscurity to Maturity: Mies van der Rohe's Breakthrough to Modernism," *Mies van der Rohe*, in *Critical Essays*, ed. Franz Schulze (New York: the Museum of Modern Art, 1989), 83.
- <sup>87</sup> Wolf Tegethoff, 43. The referred phrase is in Mies van der Rohe, "Hochhäuser," *Frühlicht* (1922), 124.
- <sup>88</sup> Adrian Forty, *Words and Buildings-A Vocabulary of Modern Architecture* (New York: Thames and Hudson, 2000), 281.
- <sup>89</sup> Mies van der Rohe, "Skyscrapers," published in without title in *Frühlicht* 1, no.4 (1922): 122-124. Republished by Fritz Neumeyer, 240.
- <sup>90</sup> Peter Carter, "Mies van der Rohe: An Appreciation on the Occasion, This Month, of His 75th Birthday," *Architectural Design* 31, no.3 (Mar. 1961): 97.
- <sup>91</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100.
- <sup>92</sup> Gevork Hartoonian, *Modernity and Its Other: A Post-Script to Contemporary Architecture*, (College Station: Texas A&M University Press, 1997), 5-6. Hartoonian stated as follows: "In addition to its temporal connotation, "post" recalls some aspects of Marc Antoine Laugier's architectural thinking as well. His departure from classical wisdom invigorated the nineteenth-century revivalist debate on Gothic and Greek architecture and attained a new momentum in Hendrik Petrus Berlage's criticism of Peter Behrens's interest in the "appearance" rather than the "intrinsic lawfulness" evident in Gothic architecture. The same horizon also separates Mies's tectonic constructs from Le Corbusier's Purism: while Mies saw geometry as a structural construct disclosing an empty space, Le Corbusier saw geometry as the language of an architecture whose plastic appearance should impress the senses. This contrast between the tectonic and aesthetic is important for current architectural theory and practice, and

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throughout the present work I will demonstrate the ways in which postmodern architecture benefits from Le Corbusier's vision."

<sup>93</sup> Ibid.

<sup>94</sup> Robin Evans, 58.

## **CHAPTER 4**

### **CONCEPTS OF THE “SKIN AND BONE” STRUCTURE**

#### **4.1 Clear Structure**

Consistently keeping his architectural mind focusing on the issue of clear structure, Mies said, “what I tried to do in architecture is to develop a clear structure,”<sup>1</sup> and that “we just should call it [my kind of architecture] a structural approach.”<sup>2</sup> For him, a clear structure was strongly related to material construct, so “how to use it [material] in the right way”<sup>3</sup> indicated the essence of his clear structure. Mies, enumerating “concrete, iron, [and], glass”<sup>4</sup> as the major materials of his time, attempted to reveal the potential of each material within the whole context of a clear structure.

In 1922, when Mies first published his idea of a new constructional type with a photograph of the model of the Glass Skyscraper, in which a steel structure was combined with a glass skin, he emphasized the contribution of glass in a clear structure by describing an opposite case, load-bearing exterior walls, which completely destroy the impression of the “high-reaching steel skeletons.”<sup>5</sup> According to Mies, if one employed massive exterior walls, the skyscrapers became a “trivial jumble of forms.”<sup>6</sup> On the other hand, if one used glass as the membrane of the skeleton, the buildings revealed “the novel constructive principle.”<sup>7</sup> In 1923, Mies, publicly proclaiming the art of building as the

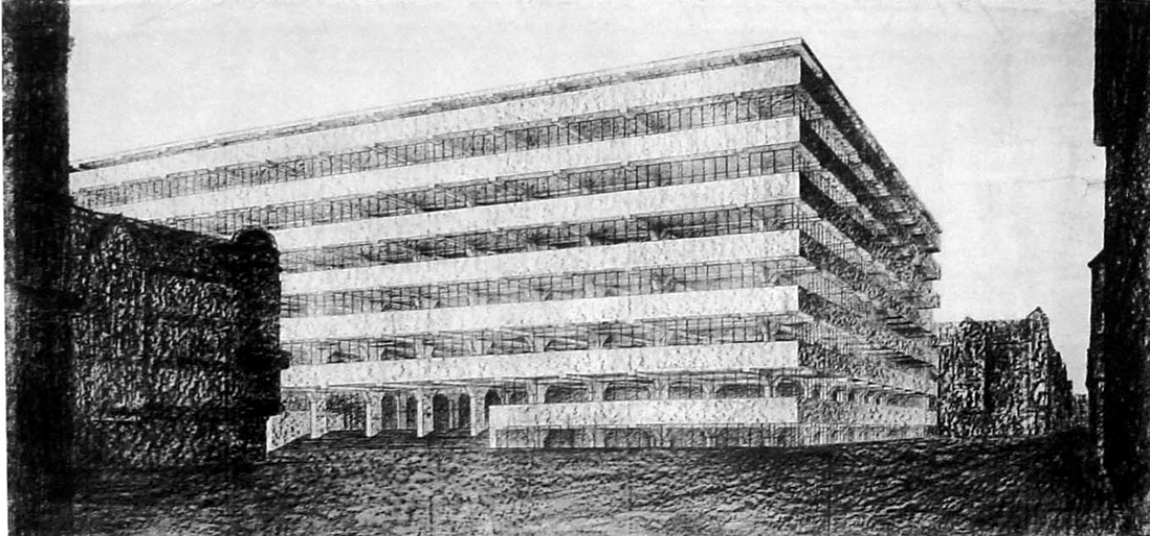


Figure 4.1 Charcoal and crayon drawing of the Concrete Office Building Project, undecided site, 1923

objective of his architecture, illustrated the other constructional type in which a concrete structure was combined with glass skin for the purpose of an office building (Figure 4.1). He identified the property of concrete in his new architecture as one of the “bone structures”:

Ferroconcrete buildings are essentially skeleton structures. Neither pastry nor tank turrets. Supporting girder construction with a nonsupporting wall. That means skin and bone structures.<sup>8</sup>

Gustav Adolf Platz, applying Semper’s tectonic and stereotomic concepts (1878-79) to contemporary materials, regarded *Tektonik*, as membered structures, now including iron and steel and *Stereotomie*, as wall structures, now including concrete.<sup>9</sup> While Semper might have regarded concrete as a stereotomic material characterized by the seamless continuum of mass, Mies considered ferroconcrete as a tectonic material contributing to a linearly trabeated system. Ferroconcrete is a kind of reinforced concrete in which steel

bars are incorporated into the concrete in order to reinforce the weakness of plain concrete in the bending and tensile action. As the major developments of reinforced concrete were introduced in the 1900s, it seemed natural that in 1879, Semper or Platz might have regarded concrete as a stereotomic material. As the first concrete high-rise building was built in Cincinnati, Ohio, in 1903, it also seemed natural that in 1923, Mies considered ferroconcrete as a tectonic material for framing construction. That is, while plain concrete was a traditional stereotomic material, ferroconcrete was a modern tectonic material employed in making his skin and bone structures.

For Mies, concrete, as a tectonic material, could be constituted for bone structures under the concept of a clear structure, so he argued as follows:

People say that concrete, because it is a plastic material, is a material that can be used for anything, but that isn't true. If you want clear structure, you must use concrete with clarity too.<sup>10</sup>

Mies stated that "the plasticity of concrete, that is funny,"<sup>11</sup> and that, "I still like it [concrete] for building a clear structure."<sup>12</sup> In his words, skeleton structures should be "neither pastry nor tank turrets" because individualistic form and style are excluded from the structure. Mies' concept of structure was not a special solution, but a "general idea."<sup>13</sup> For him, structure did not indicate "individual solutions,"<sup>14</sup> so the form of a building was "not the goal but the result"<sup>15</sup> of a reasonable, general "principle."<sup>16</sup> Mies' disapproval of the plasticity of concrete was related to both his disgust with arbitrary formalism and the pursuit of an objective building. Mies believed in the important role of building in his art of building:

It is our specific concern to liberate building activity [*Bauerei*] from aesthetic



speculators and make building [*Bauen*] again what alone it should be, namely BAUEN.<sup>17</sup>

This phrase above may also be related to his structure: Mies newly created the concepts of structure in his own way by focusing on the autonomy of building activity free from artistic emotion and arbitrariness. He distinguished the objective<sup>18</sup> construction of architectural materials from the subjective expression of art:

In painting you can express the slightest emotion, but with a beam of wood or a piece of stone you cannot do much about it. If you try to do much about it, then you lose the character of your material. I think architecture is an objective art.<sup>19</sup>

The reason why Mies hated the word architecture seems related to his belief in the importance of structural autonomy based on each materiality. He did not like the nuance of architecture in which “you form something from the outside”<sup>20</sup> of material reasonableness.

In place of the word architecture, Mies used *Baukunst*, or “the art (*Kunst*) of building (*Bau*).” For Mies, the art signified “the refinement of the building,”<sup>21</sup> or more specifically, the refinement of structure:

I was interested in structural architecture, I was interested in Romanesque, I was interested in Gothic architecture. They are often misunderstood. You know, the profiles of a pillar in a cathedral, that is still a very clear structure. The refinements were to make it clear, not to decorate it, but to make it clearer.<sup>22</sup>

One can distinguish the meaning of the refinements from that of decoration by comparing the drawing of a construction system of Mies (Figure 4.2) with that of Le Corbusier (Figure 4.3), both illustrated by Fritz Neumeyer, according to whom Mies’ architecture,

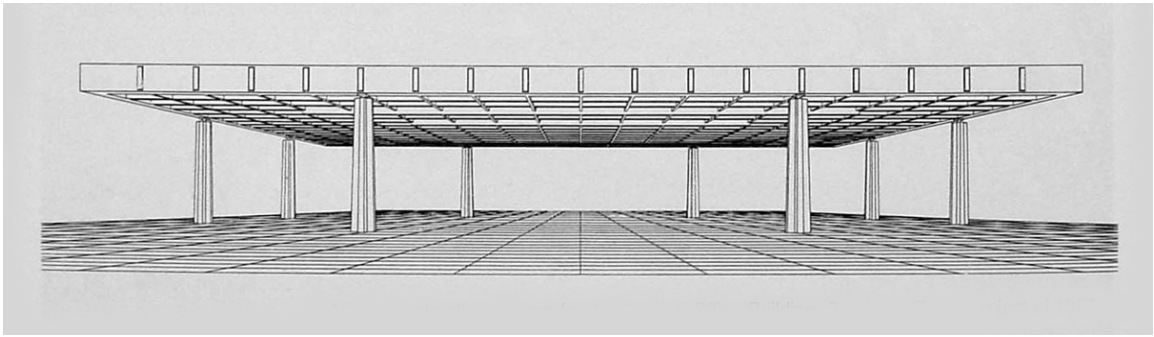


Figure 4.2 Mies' Construction System for the Bacardi Office Building, 1957

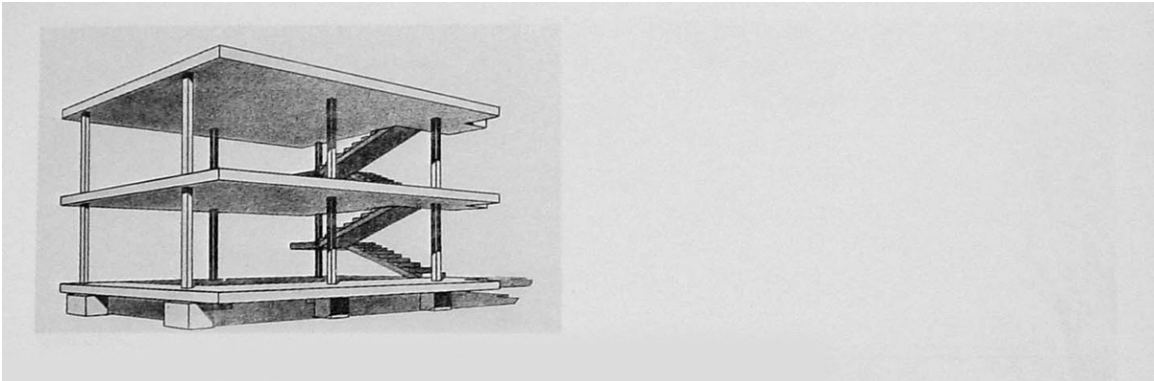


Figure 4.3 Le Corbusier's Domino Construction System, 1914

in the historical context of architecture, is oriented toward engineering and Le Corbusier's toward plastic art.<sup>23</sup> From the structural point of view, in which one more specifically analyzes these two constructional systems of the two modern masters, he may more clearly distinguish Mies' pursuit from Le Corbusier's. The illustration of the Domino construction system by Le Corbusier is neither a design nor a structural drawing; that is, one cannot make out the exact structural system, as it is a relatively abstract, conceptual diagram. One cannot imagine a final appearance either because no reference has been made to the designer's aesthetic intention, in which one feels "the sensation of

sentimental nature,”<sup>24</sup> which Neumeyer considers as the decisive criterion of the building art of Le Corbusier. In the Domino construction, one may conclude that the conceptual completely differs from the aesthetic.

By comparison, one may imagine the whole intention of Mies in his drawing of the constructional system for the Bacardi Office Building, in which columns are not plain. On the contrary, they are cruciform, tapered, and pin-jointed to the top, revealing the structural intention of Mies. According to Phyllis Lambert, the cruciform is a structural solution and the minimum number of columns is a solution for “supreme elegance,”<sup>25</sup> as the cruciform resists bending in both directions. Mies tries to create a whole construction system covering new details as well as the industrialized constructional process, which was called a structure by Mies:

The structure is the whole, from top to bottom, to the last detail—with the same ideas. That is what we call structure.<sup>26</sup>

Mies attempted to establish a new proto-form comprising the structural, the material, the spatial, the aesthetic, and the technological in a single refined body, which Mies referred to as a clear structure. In that sense, one may understand a context in which most of his designs are developed without a client and without a specific site:

I do that on purpose and have done it all my life. I do it when I am interested in something. I do it just to hope that one day the building will be lived in and liked.<sup>27</sup>

Mies also stated, “I want a structural architecture, because I believe that that is the only way by which we can have a communion with the essentials of our civilization.”<sup>28</sup> Mies, grasping the essence of tectonic (or framing) materials and anticipating the potential of its

structure, searched for the underlying principle of his new architecture. The tectonic structure of Mies is refined by organic details that make a building an integrated whole rather than decorated by stylistic forms that remind one of historic classicism. Accordingly, in the context of clear construction, the opinion of Kenneth Frampton seems to lack validity in his interpretation that “Mies van der Rohe achieved a highly accomplished architectonic integration of two primary aspects”: “structural rationalism” and “romantic classicism.”<sup>29</sup> Frampton, suggesting the cruciform of mega-columns in the New National Gallery as an example of the architectonic integration, argued that this hinged-joint of the column head is “a bridge-bearing and a metaphorical capital.” Although Mies confessed that “it should be possible to bring the old and the new forces of our civilization into harmony with each other,”<sup>30</sup> he argued in his article “Mies Speaks: I Do Not Design Buildings. I Develop Buildings,” that “architecture is not a cocktail.”<sup>31</sup>

## **4.2 The Light Appearance of Mies’ Tectonic Structure**

The clear structure of Mies, based on tectonic materials and objective principles, represents a single refined body made of skin and bones, that is, a tectonic or framing structure with a glass membrane. Tectonic structure is composed of clearly jointed framing elements, one of its major characteristics being a light appearance. Robin Evans interpreted the skin of the Lake Shore Drive Apartments (Figure 4.4) of Mies as an example of “conceptual structures”<sup>32</sup> because the skin of the building does not represent a load-bearing structure: “Look at the Lake Shore Drive Apartments (1948-51), where, twenty years later, every effort was made to deny that structure has anything to do with



Figure 4.4 External view of the Lake Shore Drive Apartments, Chicago, 1948-51

weight, heaviness, crushing, distension or bending. The towers do not stand there. They hang. Not even that. I am searching for a word that does not convey any ideas of gravitation. There are plenty of words that suggest lightness and there are plenty of buildings that do the same. Lightness implies dynamic, but only partial, escape from ponderous immobility. The towers at Lake Shore Drive (LSD) do not represent a remission of mass.”<sup>33</sup>

Evans, who seemed to identify the concept of structure with that of a load-bearing system, asked as follows: “How, then, have his buildings maintained their reputation as expressions of structural truth and structural rationality?”<sup>34</sup> Then, he concluded that Mies’ intention was in the conceptual structures in that the towers at LSD suppress the

representation of a load-bearing structure. From Evans' structural viewpoint, which does not distinguish tectonic from stereotomic structures, Mies' structure might be equivocal. Actually, it is natural that the structure of the LSD apartments does not reveal the massively load-bearing force, as their structure is not stereotomic but tectonic. Henry-Russell Hitchcock and Philip Johnson called the new phase of architecture in 1932 the International Style, describing an innovative characteristic distinguished from the existing stereotomic construction as follows: "The effect of mass, of static solidity, hitherto the prime quality of architecture, has all but disappeared. . . With skeleton construction enveloped only by a protective screen, the architect can hardly avoid achieving this effect of surface, of volume, unless in deference of traditional design in terms of mass he goes out of his way to obtain the contrary effect."<sup>35</sup>

Although Kenneth Frampton argued that "the International Style never became truly universal,"<sup>36</sup> one may at least admit that another type of structure was created outside the traditional, classical stereotomic structure in architectural history. The tectonic structure of Mies' steel buildings has something in common with that of the International Style in that it is made by skeleton-framing rather than load-bearing construction. Mies, clearly grasping the material characteristics of steel, emphasized its lightness, saying as follows:

I think that this [steel] is a fine material. By fine, I mean it is very strong. It is very elegant. You can do a lot with it. The whole character of the building is very light. That is why I like it when I have to build a building in a steel construction.<sup>37</sup>

The light appearance of the LSD apartments was intrinsically intended by Mies, who recognized the major potential of steel as a new light material.

Carles Vallhonrat explained the existence of two kinds of construction: the construction made of “mass or masonry materials” and that of “frame and infill panels.”<sup>38</sup> Vallhonrat, suggesting space-frame as an example almost free from carrying loads to the ground,<sup>39</sup> says that steel is used to carry linear loads distinguished from massive loads. Evans, who could not distinguish between characteristics of the double system composed of a tectonic structure and a lightweight membrane from those of the stereotomic monolithic system, identifies the cladding skin of the LSD apartments with its structural system: Tectonic bones need an independent skin while the stereotomic wall is both the structure and enclosure at once. (Chapter 7.2 will further discuss the tectonic skin of Mies’ high-rise buildings.)

Kenneth Frampton, also understanding the dual tectonic system of the LSD apartments, maintained that their dexterously woven cladding system could fully take the place of the traditional stereotomic wall: “In short, more than in any other work by Mies, the wall [of the Lake Shore Drive apartments] is rendered here—after Semper’s prescription—as a woven fabric; a subtle integration of structure with fenestration that displays the same capacity as load-bearing masonry for limiting any extension of the space.”<sup>40</sup> The apparent lightness<sup>41</sup> of the LSD apartments is natural because the outer enclosure is independent of the load-bearing structure, but Mies stressed that the skin clearly revealed the existence of a structure through its regular bay in the elevation and exposed columns at the ground level: this approach shows an illustration of Mies’ concept of refinement when he asserted that “the refinements were to make it clear, not to decorate it, but to make it clearer rather than a decoration.”<sup>42</sup>

While Evans did not recognize the characteristics of a tectonic structure, Edward

R. Ford may have misunderstood those of Mies' stereotomic buildings such as the Lang House, which he described as follows: "It is essentially a load-bearing masonry building. The walls are configured in the loose, open relationships associated with Constructivism and De Stijl, but they do not attain the independence of structure and wall, or of wall and wall, that characterizes the Barcelona Pavilion."<sup>43</sup> Since he did not consider the stereotomic structure of masonry "modern," Ford seemed dissatisfied with the structure of the Lang House. It is natural, in terms of material property, that the load-bearing masonry wall of the Lang House is not independent of structure because the stereotomic wall itself is the structure. Ford's judgment about whether it is modern or not may adhere to the independence of the wall from the structural system: According to his logic, all masonry, or stereotomic material, is excluded from the modern structure: If one used stereotomic material as a main structure, the building would not be modern. Thus, one must understand the duality of Mies' tectonics in order to properly judge his buildings as modern or not. In contrast to Ford, Werner Blaser recognized Mies' reasonableness in using stereotomic material: "There has been no essential change in the bonding of a brick wall for centuries. Mies's discovery has been to recognize the fundamental law and logic of the material and unify the walls in a well-proportioned interplay of volumes and open spaces both inside and outside."<sup>44</sup> Blaser evaluated Mies' stereotomic building as modern in that it maintained material reasonableness and spatial openness.

With regarding to the clear structure of Mies, the light appearance of Mies' buildings naturally comes from the whole property of a double system composed of a framing structure and lightweight membrane material, or a tectonic system in contrast to a stereotomic system. Evans, who did not regard the importance of Mies' tectonic



materiality, interpreted the lightness of the LSD apartments as the result of a conceptual grid: “Conceptual structures are notable for their independence from material contingency. Think of a mathematical grid; it is not subject to gravity.”<sup>45</sup> It is true that the plan of the LSD apartments was based on a grid: The basic module was 5 feet 3 inches (1.6m) and the structural bay is composed of four times of the basic module, which is 21 square feet.<sup>46</sup> Although the grid was based on an exact number, it is not conceptual but physical because the basic module is literally a building module rather than a mathematical module. The articulated module is connected with the sizes for constructional handling such as factory production for maximum glass width, the portable size of materials, and manual fabrication. The standardized module of Mies’ buildings basically follows construction efficiency, including handling capability rather than conceptual numbers.

The structural bay of 21 feet is also derived from structural and constructional reasonableness, as Mies said about his project of the Concrete Office Building:

The most practical distribution of the work stations determined room depth; it is 16m [52ft 6in]. A double-shafted frame of 8m [26ft 3in] span-width with 4m long lateral cantilever brackets on either side was established as the most economical construction principle.<sup>47</sup>

While Mies suggested 26 feet 3 inches as an efficient module of the office building, he conceived a 21-foot module for the plan of the LSD apartments. According to the typical plan of the LSD, the structural bay of 21 feet not only satisfies the gravitational problem but also the proper composition of basic functions: the bay is equal to the sum of the two widths of the stairs and that of the corridor (Figure 4.5). The structural bay also accounts for environmental considerations such as day-lighting. As rule of thumb, Architectural

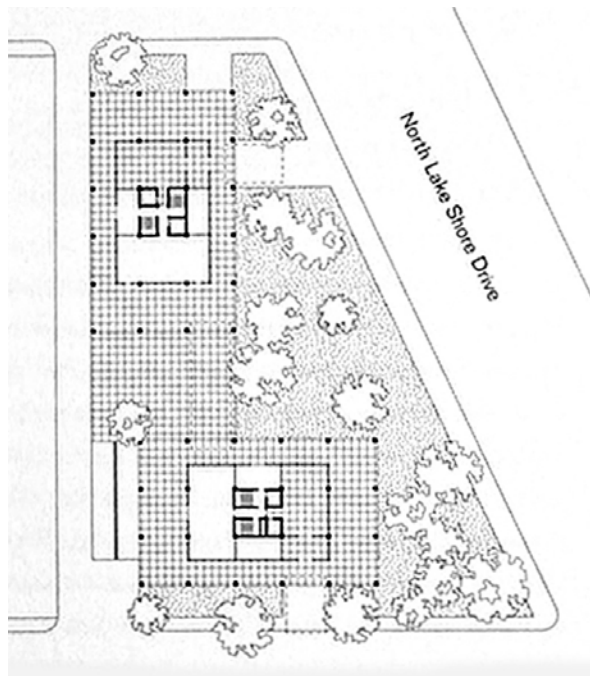


Figure 4.5 Site plan of the Lake Shore Drive Apartments

Graphic Standards states that day-lighting can be achieved to a depth of about 2.5 times the height of the windows, or about 15 to 20 feet from the windows.<sup>48</sup> The structural bay is 21 feet, and the actual depth of the main room is three-fourths of the depth, so the bay of the LSD satisfies the requirement of day-lighting depth, too. Evans asserts that Mies' grid appears mathematical and conceptual, but it is actually an elaborate solution resulting from Mies' perseverance in obviating constructional reality and creating physical agreeableness.

As Mies' approach in making the grid of profane architecture was objective and reasonable enough to apply to general buildings, architects who followed him copied his module and basic framing system. For Mies, structure was "not a special solution" but a "general idea."<sup>49</sup> Thus, as he succeeded in solving the total problem of the buildings of his time, his solution had a "universal character"<sup>50</sup> that he referred to as "a clear structure

and construction.”<sup>51</sup> With regard to others’ copying his buildings, he responded positively, saying as follows:

I say that [others’ copying my buildings] is not a problem to me. I think that is the reason we are working, that we find something everybody can use. We hope only that he uses it right.<sup>52</sup>

As Mies attempted to have his buildings universally accepted, their appearance does not expose emotional nuance; however, their objective characteristics should be distinguished from their conceptual abstractions.

#### **4.3 The Transparency and Reflection of Glass**

Mies regarded glass the most crucial material, viewing it as the enclosing skin of Mies’ skin and bone structures. Glass was the first material that represented his new vision of tectonics. In 1922, when he started to publish his thought on new construction, he raised the issue of glass skyscrapers, emphasizing the necessity of glass by exposing the problems of the massive wall used as the skin of skyscrapers as follows:

Only skyscrapers under construction reveal the bold constructive thoughts, and then the impression of the high-reaching steel skeletons is overpowering. With the raising of the walls, this impression is completely destroyed; the constructive thought, the necessary basis for artistic form-giving, is annihilated and frequently smothered by a meaningless and trivial jumble of forms.<sup>53</sup>

Such a view of the skyscrapers under construction represented Mies’ “architectonic”<sup>54</sup> thought, as pointed out by Neumeyer, whose concern was to discern the

aesthetic aspect from the technical in Mies' tectonics of the glass skyscrapers. He concluded that, for Mies, "the aesthetic precedes the technical."<sup>55</sup> After all in 1922, Mies was not able to get technology to support his vision of skyscrapers, which led to criticisms of the unrealistic nature of his skyscraper: "the beautiful vision of Mies will never be realized, it will remain a paper plan, a book drama."<sup>56</sup> Building technology that could support an all glass-skinned curtain-wall system never materialized in the 1920s. In fact, it was not until the early 1960s that technology allowed structural glazing by incorporating silicon sealants in actual construction.<sup>57</sup>

As Mies was not able to conceive the actual constructional method of his skyscraper in technological terms, critics have generally argued from an aesthetic point of view whether the criticism of the time was based on influences of expressionism or abstractionism. Fritz Neumeyer interpreted the Glass Skyscraper project as a building of "a new time characterized by a preference for reason and abstraction,"<sup>58</sup> arguing against the retrospective expressionism that assessed it as the crystalline stereometry related to the "glass-and-crystal euphoria of expressionism."<sup>59</sup> In 1920, Bruno Taut published an expressionistic approach to glass in the first issue of *Frühlicht*,<sup>60</sup> in which Mies introduced his Glass Skyscraper project in 1922. Despite the apparent similarity between the expressionist movement and Mies' Glass Skyscraper, Neumeyer argued that such proximity was superficial in that Mies' building was based on abstract form.

One point of view claimed that through his art of building Mies may have wanted to reveal the essence of the materiality of glass rather than the glass-and-crystal euphoria of expressionism, or a preference for reason and abstraction. Hyun Seo asserted that the Glass Skyscraper project should be regarded in architectural history as the first

architectural project revealing the transparency of glass as a material.<sup>61</sup> According to Seo, in the charcoal drawing of the Friedrichstrasse Skyscraper Project of 1921 (Figure 4.6) Mies had not yet completely represented his understanding of glassy transparency. Finally, a photograph of a model of the Glass Skyscraper Project of 1922 (Figure 4.7) revealed that he had finally succeeded in displaying the clear transparency of glass that he had intended. The transparency of the glass is exposed only if its rear side is brighter than the front side. Mies “always relied on models”<sup>62</sup> in order to comprehend the real action between the materiality of glass and light. He developed the Glass Skyscraper Project with the “help of a model installed outside a window of his office in order to obtain the most realistic light conditions.”<sup>63</sup> Through the photograph of the model of the Glass Skyscraper, one can presume that he set a backlight as well as multilateral lights to reveal the inner structure behind the glass membrane, a material that maintains the properties of both transparency and reflection.

In contrast to the action of the transparency of the glass, one regards the glass wall as an illuminating or reflecting material when the front side of the glass is brighter than the rear side. The photograph of the Glass Skyscraper Project exposes the inner structure while implying the existence of the glass through random reflections. The glassy reflection creates a vicissitudinous phenomenon in which the glass goes beyond its own materiality to a virtual level. K. Michael Hays described this kind of materiality of glass as the transubstantiation of the reality as the appearance of another dimension emerges and disrupts the normal order of phenomena: “This is not to deny that Mies’s architecture is also a positive proposal beyond the virtual, but rather to point to the power of its negativity in itself, which emerges as the appearance of another dimension that disrupts

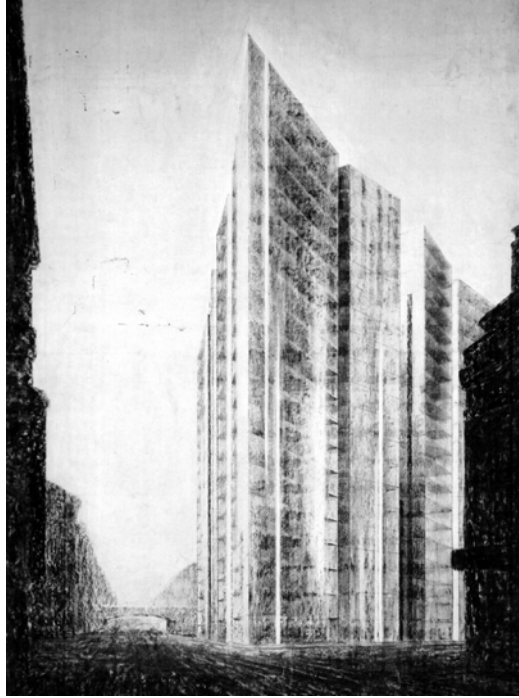


Figure 4.6 Charcoal and pencil drawing of the Friedrichstrasse Skyscraper Project, Berlin-Mitte, 1921

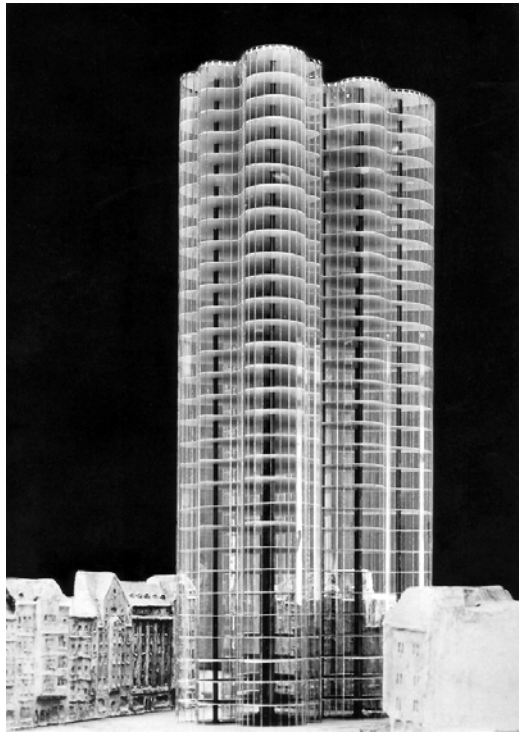


Figure 4.7 Photograph of the model of the Glass Skyscraper Project, Undecided site, 1922

the normal order of phenomena—a fleeting, anticipatory glimpse of a possible world made out of the very substance of what exists, but which momentarily appears or shines through the Miesian matter that has replaced it and which, in the next instant, is already lost.”<sup>64</sup>

Mies understood the ambivalent characteristics of glass, transparency and reflection, within an entire context of tectonics that comprises an inner structure and an enclosing membrane rather than treating glass as an independent element simply for window openings. One may understand how he achieved the expected actions in the material tectonic of glass through the following writing of Mies:

My experiments with a glass model helped me along the way and I soon recognized that by employing glass, it is not an effect of light and shadow one wants to achieve but a rich interplay of light reflections. That is what I strove for in the other design published here. At first glance the contour of the ground plan appears arbitrary, but in reality it is the result of many experiments on the glass model. The curves were determined by the need to illuminate the interior, the effect of the building mass in the urban context, and finally the play of the desired light reflection.<sup>65</sup>

The effect of light and shadow more strikingly appears in stereotomic buildings: a dark shadow appears only at the rear side of an opaque material; therefore, the effect of light and shadow is more effectively expressed in massive, form-oriented buildings. While the effect of light and shadow belongs to stereotomically sculptured buildings, the effect of transparency and reflection is structurally and materially oriented to tectonic buildings composed of glazed frames. While the tectonic structure is more clearly exposed through

transparency, the glassy materiality is more virtually revealed in the interplay between light and glass. Mies, recognizing the phenomenon at tectonically different phases of the structural and the material, may have asserted the actual importance of material forces:

For only where the building art leans on the material forces of a period can it bring about the spatial execution of its spiritual decisions. But that is its actual meaning and it has never been otherwise.<sup>66</sup>

From a perspective based on material forces, Mies may never have intended for the Glass Skyscraper to be understood as a form of crystalline stereometry emphasizing the superficial outer form made of glass, but as crystalline stereotomy, which is a constructional type composed of a massive continuum of solid matter. In contrast, stereometry is defined as three-dimensional measurement in which the superficial shape of mass becomes the object of observation. Mies' glass wall is actually a thin screen, but it may be perceived as a transparently massive stereotomy through an illusion created by the interplay between transparency and reflection, as if monolithic crystal lumps had been piled one upon the other. Kenneth Frampton also described the quality of Mies' glass as a kind of transparent stone, claiming that a "similar [phenomenological] emphasis was also present in Mies's glass skyscraper proposals of two years earlier, also rendered in charcoal and wax. This stress on the tactility of material, as revealed under light, will recur repeatedly throughout his career. Indeed, these glass skyscrapers may well be the first instance we have of Mies' treating glass as though it were a kind of transparent stone: a sensibility that will manifest itself even more paradoxically in the revetment of the Seagram Building."<sup>67</sup> Mies wanted to reveal the potential of the materiality of glass in the context of the tectonic structure: that crystalline stereotomy appears only when



material characteristics of glass are combined into the structure of the building. This material phenomenon objectively connected to inner structure should be distinguished from expressionism based on an arbitrarily superficial form.

Mies used the term tectonic in his 1924<sup>68</sup> and 1933<sup>69</sup> manuscripts, in which he proposed a wider vision of architectonics by raising the issue of glassy materiality. In the 1933 manuscript, terms such as architectonic and tectonic implied constructive appearance exposing the skeleton structure in the following quote:

The glass skin, the glass walls alone permit the skeleton structure its unambiguous constructive appearance and secure its architectonic possibilities.<sup>70</sup>

From the fact that Mies emphasized the glass by using a word “alone,” one may deduce that his formulation of skin and bone buildings was based on glassy materiality as well as skeletal structure. According to Mies, only glass could create the clear appearance of the skeleton construction. He described the glass skin and walls as “genuine” in that they became the “instruments of a new building art [art of building or *Baukunst*],”<sup>71</sup> and then stressed again that glass contributed to the “clarity of tectonic means.”

Those who recognize the importance of the comprehensive view of the relationship of glassy materiality and inner structure in Mies’ art of building may have a different view from Tegethoff, who criticized the glass of the Glass Skyscraper project as untectonic as follows: “In fact, the curtain wall does not reveal, but only implies, the steel skeleton behind it; and it is not the transparency but, rather, the fragile, untectonic nature of the glass that demonstrates its non-bearing character.”<sup>72</sup> Tegethoff identified the tectonic concept with the form of a skeleton that exposed a load-bearing system. Hence, he viewed reflective glass as untectonic, as the reflection of glass obscures the clear

exposition of the structural frame inside. The etymological meaning of the term tectonic pertains to the art of framing construction, so glass should be understood in its contextual relationship with the structure. While the structural tectonics of the frame is more clearly perceived through the transparency of glass, the material tectonics of glass itself is revealed in its reflective interplay with light.

Fritz Neumeyer, however, assessed the Glass Skyscraper as “the myth of a new time characterized by a preference for reason and abstraction.” At first glance, his words reason and abstraction seem to describe Mies’ architecture accurately, but his evaluation seems textual, tending to discourage the reality of Mies’ material art of building and reducing it to conceptual abstraction. In contrast to Neumeyer’s expression “reason and abstraction,” Mies valued “reason and realism.”<sup>73</sup> Mies attempted to make his tectonic recognition understood on the basis of fact, as one has seen his concerns in the actual experiment of glass rather than the supernatural “myth.” Mies tried to realize the will of the epoch by starting to solve physically realistic problems. In the Adam Building project of 1930, Mies, concerned with the subtlety of the various effects of transparent and opaque glass, also anticipated the reversed, nocturnal illumination of glass in the overall context of urban scene:

I therefore suggest to you making the skin of your building of glass and stainless steel, with the bottom floor of transparent glass, the others of opaque glass. Walls of opaque glass give the rooms a wonderfully mild but bright and even illumination. In the evening it represents a powerful body of light and you have no difficulties in affixing advertising.<sup>74</sup>

When Mies referred to the will of the epoch, it may have been interpreted as architectural consciousness pursuing a tectonic sensibility with a creative knowledge adapted to the industrialized context of construction. Although Mies confined the epoch to his time, the tectonic characteristic of glass revealed by Mies appeals to one's basic sensibility, which still seems valid. Thus, it has become a universal quality in tectonics.

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- <sup>1</sup> Mies van der Rohe, Interview (1955) by John Peter, *The Oral History of Modern Architecture: Interviews with the Greatest Architects of the Twentieth Century* (New York: Harry N. Abrams, 1994), 161.
- <sup>2</sup> Ibid.
- <sup>3</sup> Ibid.
- <sup>4</sup> Mies van der Rohe, "Office Building," *G*, no.1 (July 1923): 3. Republished by Fritz Neumeyer, 241.
- <sup>5</sup> Mies van der Rohe, "Skyscrapers," published in without title in *Frühlicht* 1, no.4 (1922): 122-124. Republished by Fritz Neumeyer, 240.
- <sup>6</sup> Ibid.
- <sup>7</sup> Ibid.
- <sup>8</sup> Mies van der Rohe, "Office Building," *G*, no.1 (July 1923): 3. Republished by Fritz Neumeyer, 241.
- <sup>9</sup> Gustav Adolf Platz, *Die Baukunst der neuesten Zeit* (Berlin: Propylaen, 1927), 132-34. Platz refers to Gottfried Semper's *Der Stil* (1878-79).
- <sup>10</sup> Mies van der Rohe, "Mies Speaks: I Do Not Design Buildings. I Develop Buildings," *Architectural Review* 145 (Dec. 1968): 452.
- <sup>11</sup> Mies van der Rohe, Interview (1964) by John Peter, 166.
- <sup>12</sup> Ibid.
- <sup>13</sup> Mies van der Rohe, Interview (1955) by John Peter, 160.
- <sup>14</sup> Mies van der Rohe, Interview (1964) by John Peter, 165.
- <sup>15</sup> Mies van der Rohe, "Building," *G*, no.2 (September 1923):1. Republished by Fritz Neumeyer, 242.
- <sup>16</sup> Ibid.
- <sup>17</sup> Ibid.
- <sup>18</sup> For Mies, "objective" corresponds to "impersonal," "general," or "anonymous." See Appendix A.2.
- <sup>19</sup> Mies van der Rohe, Interview (1964) by John Peter, 163.
- <sup>20</sup> Mies van der Rohe, Interview (1964) by John Peter, 164.
- <sup>21</sup> Ibid.
- <sup>22</sup> Mies van der Rohe, Interview (1964) by John Peter, 165.
- <sup>23</sup> Fritz Neumeyer, 124. Neumeyer stated as follows: "Mies viewed the buildings of the past with the same sobriety. If one could relinquish that attitude of "romanticism" one could discover in the cathedral, in the "masonry structures of antiquity," and in the "brick and concrete constructions of the Romans" those "incredible bold engineering feats" that stand witness to the will of the epoch. . . . Le Corbusier by contrast had caused history to affirm his plastic will to form. Over and above construction, cathedrals and temples speak of a search for the Dionysian "drama, . . . [original abbreviation] a sensation of sentimental nature," as the decisive criterion of the building art. To assemble the stones for the Parthenon that had previously lain "inert in the quarries of Pentelicus, unshaped," one had to be, in Le Corbusier's eyes, "not an engineer, but a great sculptor."
- <sup>24</sup> Ibid.
- <sup>25</sup> Phyllis Lambert, "Mies Immersion," *Mies in America* (New York: H.N. Abrams, 2001), 490.

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- <sup>26</sup> Mies van der Rohe, in Peter Carter, "Mies van der Rohe: An Appreciation on the Occasion, This Month, of His 75th Birthday," *Architectural Design* 31, no.3 (Mar. 1961): 97.
- <sup>27</sup> Ludwig Mies van der Rohe, "No Dogma," *Interbuild* 6 (June 1959): 10.
- <sup>28</sup> David Spaeth, 16.
- <sup>29</sup> Kenneth Frampton, "Modernism and Tradition in the Work of Mies van der Rohe, 1920-1968," in *Mies Reconsidered: His Career, Legacy, and Disciples*, ed. John Zukowsky (New York: Rizzoli International Publications, 1986), 53.
- <sup>30</sup> Mies van der Rohe, Foreword to *Mies van der Rohe: The Art of Structure* by Werner Blaser (New York: Thames and Hudson, 1965), 6.
- <sup>31</sup> Mies van der Rohe, "Mies Speaks: I Do Not Design Buildings. I Develop Buildings," *Architectural Review* 145 (Dec. 1968): 451.
- <sup>32</sup> Robin Evans, "Mies van der Rohe's Paradoxical Symmetries," *AA files* 19 (Spring 1990): 60.
- <sup>33</sup> Robin Evans, 59-60.
- <sup>34</sup> Ibid.
- <sup>35</sup> Henry-Russell Hitchcock and Philip Johnson, *The International Style* (Exhibition Catalogue, New York: Museum of Modern Art, 1932). Quoted in Kenneth Frampton, *Modern Architecture* (London: Thames and Hudson, 1980), 248.
- <sup>36</sup> Ibid.
- <sup>37</sup> Mies van der Rohe, interview (1964) by John Peter, in *The Oral History of Modern Architecture: Interviews with the Greatest Architects of the Twentieth Century* (New York: H.N. Abrams, 1994), 167.
- <sup>38</sup> Carles Vallhonrat, "Tectonics Considered Between the Presence and the Absence of Artifice," *Perspecta* 24 (1988): 133.
- <sup>39</sup> Carles Vallhonrat, 124. "Space-frames for instance, do not represent a solution to the problem of carrying loads to the ground, or to supports and then to the ground. . . Only multi-directional, external, dynamic forces could justify that kind of three-dimensional space structure."
- <sup>40</sup> Kenneth Frampton, 234.
- <sup>41</sup> Kenneth Frampton, "Rappel à l'ordre, the Case for the Tectonic" (1990). Republished in *Theorizing a New Agenda for Architecture*, ed. Kate Nesbitt (New York: Princeton Architecture Press, 1996), 527. Kenneth Frampton describes tectonics in terms of lightness and dematerialization: "However, other dialogical conditions are involved in the articulation of tectonic form, particularly the contrast between the culture of the heavy-*stereotomics*, and the culture of the light-*tectonics*. The first implies load-bearing masonry and tends towards the earth and opacity. The second implies the dematerialized A-frame and tends towards the sky and translucence. At one end of this scale we have Semper's earthwork reduced in primordial times, as Gregotti reminds us, to the marking of ground. At the other end we have the ethereal, dematerialized aspirations of Joseph Paxton's Crystal Palace, that which Le Corbusier once described as the victory of light over gravity."
- <sup>42</sup> Mies van der Rohe, interview (1964) by John Peter, 165. "I was interested in Romanesque, I was interested in Gothic architecture. They are often misunderstood. You know, the profiles of a pillar in a cathedral, that is still a very clear structure. The refinements were to make it clear, not to decorate it, but to make it clearer."

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- <sup>43</sup> Edward R. Ford, "Ludwig Mies van der Rohe and the Steel Frame," *The Details of Modern Architecture* (Cambridge: MIT Press, 1990), 267.
- <sup>44</sup> Werner Blaser, *Mies van der Rohe: The Art of Structure* (New York: Thames and Hudson, 1965), 21.
- <sup>45</sup> Robin Evans, 59-60.
- <sup>46</sup> Peter Carter, *Mies van der Rohe at Work* (New York: The Pall Mall Press, 1974), 54.
- <sup>47</sup> Mies van der Rohe, "Office Building" (1923), G, Fritz Neumeyer, *The Artless Word: Mies van der Rohe on the Building Art*, translated by Mark Jarzombek (Cambridge: The MIT Press, 1991), 241.
- <sup>48</sup> *Architectural Graphic Standards* (AIA), Ninth Edition, 58.
- <sup>49</sup> Mies van der Rohe, interview (1955) by John Peter, 160.
- <sup>50</sup> Mies van der Rohe, Letter to Messrs. Cameon Alread et al., Manuscript (1960), in Phyllis Lambert, "Space and structure," *Mies in America* (New York: Whitney Museum of American Art, 2001), 391. See Appendix A.2.
- <sup>51</sup> Ibid.
- <sup>52</sup> Mies van der Rohe, interview (1955) by John Peter, 160.
- <sup>53</sup> Mies van der Rohe, "Skyscrapers," published in without title in *Frühlicht* 1, no.4 (1922): 122-124. Republished by Fritz Neumeyer, 240.
- <sup>54</sup> Fritz Neumeyer, 110. Neumeyer stated as follows: "This sentence indicates the starting point from which the architectonic reality is to be perceived: it is not construction in its technical potential but the construction's appearance that is given an admiring glance. Mies's first and, one may conclude, primary interest is not so much ignited by the technical as by the aesthetic. It is his concern to redeem the aesthetic sensations triggered by construction's appearance and to translate them into architectonic reality. In Mies's contemplation of the skyscraper, the aesthetic precedes the technical and not the other way around."
- <sup>55</sup> Ibid.
- <sup>56</sup> Mies van der Rohe, "New Building," *Berliner Börsenkurier* (March 1, 1928). Republished by Fritz Neumeyer, 302.
- <sup>57</sup> Mies van der Rohe, "New Glass Technology: The Miesian Vision Surpassed," *Architectural Record* 4 (December 1986): 22.
- <sup>58</sup> Fritz Neumeyer, 4.
- <sup>59</sup> Fritz Neumeyer, 3-4.
- <sup>60</sup> Ludwig Glaeser, *Mies van der Rohe: Drawings in the Collection of the Museum of Modern Art* (New York: The Museum of Modern Art, 1969), no page indicated. Glaeser also indicates the affinity between Mies' two skyscrapers and expressionist architecture such as that of Bruno Taut.
- <sup>61</sup> Hyun Seo, "A Study on a Practical Application of Transparency of Glass Appeared on Architecture of Mies van der Rohe," *Journal of the Architectural Institute of Korea*, (June 2002): 69-76. Translated by the author of this dissertation.
- <sup>62</sup> Ludwig Glaeser, no page indicated.
- <sup>63</sup> Ibid.
- <sup>64</sup> K. Michael Hays, "The Mies Effect," in *Mies in America*, ed. Phyllis Lambert (New York: H.N. Abrams, 2001), 696.
- <sup>65</sup> Mies van der Rohe, "Skyscrapers," published in without title in *Frühlicht* 1, no.4 (1922): 122-124. Republished by Fritz Neumeyer, 240.

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- <sup>66</sup> Mies van der Rohe, Unpublished manuscript of 1927. Published by Fritz Neumeyer, 262.
- <sup>67</sup> Kenneth Frampton, *Studies in Tectonic Culture: the Poetics of Construction in Nineteenth and Twentieth Century Architecture* (Cambridge: The MIT Press, 1995), 161.
- <sup>68</sup> Mies van der Rohe, "Lecture" (An unpublished manuscript of 1924). Published by Fritz Neumeyer, 250.
- <sup>69</sup> Mies van der Rohe, "What Would Concrete, What Would Steel Be without Mirror Glass?" (a Manuscript of 1933). Published by Fritz Neumeyer, 314.
- <sup>70</sup> Ibid.
- <sup>71</sup> Ibid.
- <sup>72</sup> Wolf Tegethoff, "From Obscurity to Maturity: Mies van der Rohe's Breakthrough to Modernism," *Mies van der Rohe*, in *Critical Essays*, ed. Franz Schulze (New York: the Museum of Modern Art, 1989), 43.
- <sup>73</sup> Mies van der Rohe, "Architecture and the Times" (1924). Republished in *Mies van der Rohe* by Philip Johnson (New York: The Museum of Modern Art, 1947), 186.
- <sup>74</sup> Mies van der Rohe, "The Adam Building," (Draft of a letter of 1928). Published by Fritz Neumeyer, 305.

## **CHAPTER 5**

### **CONCEPTS OF THE “FREESTANDING ONYX WALL”**

#### **5.1 Material Freestanding Walls**

Chapter 3.2 (Two Periods of Critical Awareness) argues that Mies was aware that modern architectural masters simultaneously focused on the issue of the open plan and that his concerns also moved from the overall frame of skin and bone structures to the spatial effectiveness of material freestanding walls in his “open plan,”<sup>1</sup> implying a single extensive space loosely zoned with minimum partitions and openly connected to the outside through maximum windows, replacing the existing closed form of individually compartmentalized rooms. In Mies’ open plan, the onyx wall of the Barcelona Pavilion represents these non-load-bearing, partitioned walls situated for his own spatial purpose. Mies recalled “the birth of the onyx wall”<sup>2</sup> of the Barcelona Pavilion in 1928 as follows:

One evening as I was working late on the building I made a sketch of a freestanding wall, and I got a shock. I knew it was a new principle.<sup>3</sup>

Richard Padovan, reporting on Mies’ account of the freestanding onyx wall as a new principle, simply interpreted it in relationship with columns carrying structural loads. The contrast between supportive columns and non-supportive walls was “no new discovery”<sup>4</sup> as Sonit Bafna argued. Le Corbusier published his 1926 “Five points of new architecture (*Les 5 points d’une architecture nouvelle*),” one of which he referred to as the free plan,



signifying a free arrangement of walls as spatial partitions separated from load-bearing columns.

Accordingly, the new principle that Mies recognized in 1928 was not simply of a freestanding wall but of a freestanding “onyx” wall, which sensually emits material property and refined finishing beyond cerebrally structural logic or abstractly spatial composition in space. One may infer the importance of onyx as a material element contributing to the characteristic of the “Miesian—which means that Mies possesses his own architectural identity by creating a new characteristic of architecture—freestanding wall” if one refers to his following account of the construction of the Barcelona Pavilion:

Right from the beginning I had had a clear idea of what to do with that pavilion. But nothing was fixed yet, it was still a bit hazy. But then when I visited the showrooms of a marble firm at Hamburg, I said: “Tell me, haven’t you got something else, something really beautiful?” I thought of that free standing wall I had, and so they said: “Well, we have a big block of onyx.” . . . [I said:] “Now go and polish it [a thin slab of onyx] at once so that I can see it.” And so we decided to use onyx.<sup>5</sup>

After the Brick House project of 1923, Mies attempted to create freestanding walls that would play a major part of his open plan, but he might have well known that the composition of his freestanding walls was not creative enough to exceed those of Wright and the paintings of De Stijl and that a structural logic between freestanding walls and load-bearing columns had already been established by Le Corbusier. Mies, confident of the freestanding wall in his open plan as a new concept in modern architecture, may have attempted to discover a new essence of it. Finally, through the construction of the

Barcelona Pavilion, he succeeded in the establishment of his own idea of a freestanding onyx wall that one could literally call the Miesian freestanding wall. Robin Evans indicates that “the choice of the onyx was accidental,”<sup>6</sup> but, as Mies explained, he had “the idea for this building”<sup>7</sup> and looked around marble depots himself in order to search for a material that was naturally beautiful and sleekly polished enough to define the Miesian space concerned with new material use. One may be convinced that the freestanding marble wall was a central issue of Mies’ creative concerns with his open plan due to the following: First, as the onyx block was of a certain size, Mies adapted the ceiling height of the Barcelona Pavilion to “twice that height.”<sup>8</sup> Then, the freestanding marble walls were continually used as a Miesian emblem not only in the Barcelona Pavilion of 1928-29 and the Tugendhat House of 1928-30 (Figure 5.1) but also in the later major works of Mies, such as the Museum for a Small City project of 1942 and the New National Gallery of 1962-68.



Figure 5.1 View of the living area of the Tugendhat House, zoned by an onyx freestanding wall (photograph of 1930), Brno, 1928-30

The new principle, which shocked Mies in 1928, signified the adoption of marble as his material of choice for freestanding walls in the context of the open plan. In other words, Mies attempted to display the originality of spatial openness by raising the intrinsic property of marble in the creation of the characteristics of the freestanding wall after it was recognized during one study of the Barcelona Pavilion. One can also justify this reasoning by illuminating a crucial change in the montage presentations of Mies. Andres Lepik raises the issue of this change: “Until 1928-29, Mies used montage exclusively in exterior views of his major projects. After 1930, however, he developed another type of montage to show interiors, . . .”<sup>9</sup> Although Lepik explained the change by focusing on the photographic collage of sculptural figures only, one should be able to recognize it at two points: First, the change in the montage presentation occurred in the following projects after Mies’ new discovery of the freestanding onyx wall. Second, freestanding material walls—whether they are made of natural stone or wood—were a unique architectural element that Mies emphasized by using real photographs of them in

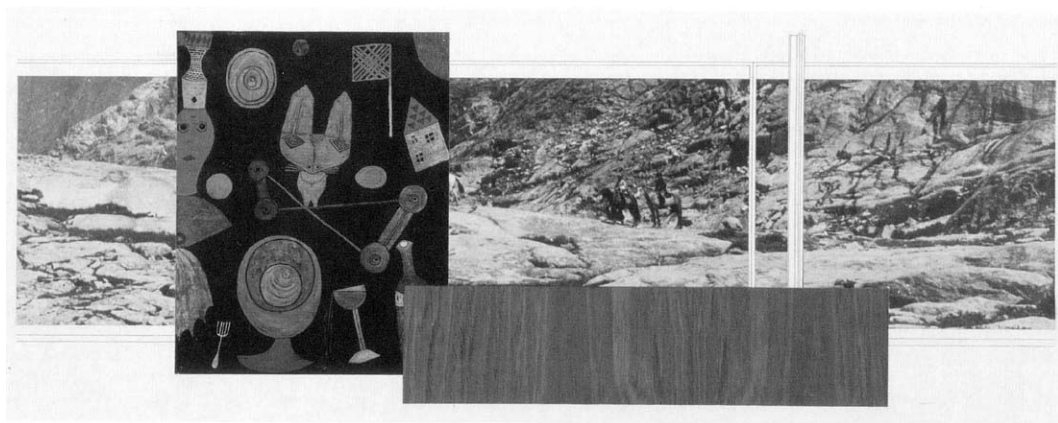


Figure 5.2 Montage with a reproduction of Paul Klee’s Colorful Meal of the Resor House Project, Wyoming, 1938

contrast with the almost invisible expression of the other architectural background (Figure 5.2). Randall Ott also endowed Mies' material walls in his montages with a special characteristic possessing ambivalence between the rational and the sensual, interpreting them as the sophisticated mediator between the "relentlessly rational" grid and the "supremely sensual"<sup>10</sup> sculpted figure in Mies' presentation.

After the awareness of the open plan in 1926, Mies tried to establish his own principle of an open plan, finally discovering in 1928 material freestanding walls as an essential element constituting the Miesian open plan. Before his discovery of the freestanding onyx wall in 1928, he had already designed the open plan, but the inner spatial openness seemed too exhibitory in the Glass Room Exhibition of 1927; in other words, the concept of freestanding partition walls was underdeveloped, as one finds it in the project of the Glass Skyscraper of 1922. Although Mies considered natural illumination in the interior space of the Glass Skyscraper, the plan was "impossible to divide into any kind of usable or desirable offices or apartments."<sup>11</sup> Mies also did not state the plan of the partition walls in the Office Building project, in which he simply described the interior space of it as "uncluttered,"<sup>12</sup> but the space became appropriate for reasonable zoning with partitions.

In the Brick Country House project of 1924, however, Mies intensively studied a new form of walls that revealed spatial openness, but the distinction between exterior walls and interior partition walls was vague. After 1936, when Alfred H. Barr, Jr. juxtaposed the Brick Country House (Figure 5.3) alongside a painting by van Doesburg entitled "Rhythm of a Russian Dance" of 1918 (Figure 5.4) in the catalogue of the Cubism and Abstract Art exhibition,<sup>13</sup> theorists pointed out the connection between Mies

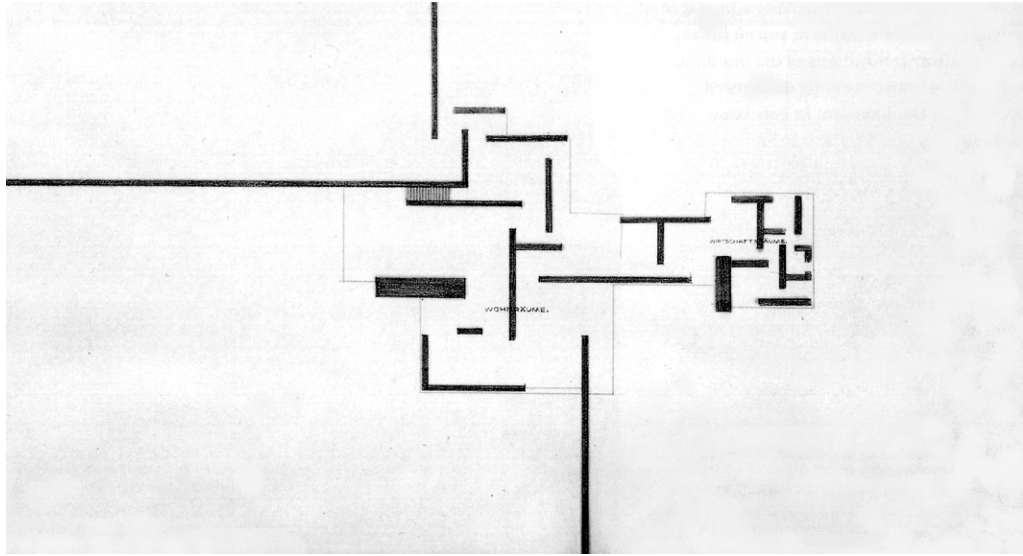


Figure 5.3 Floor plan of the Brick Country House Project, Potsdam-Neubalesberg, 1924

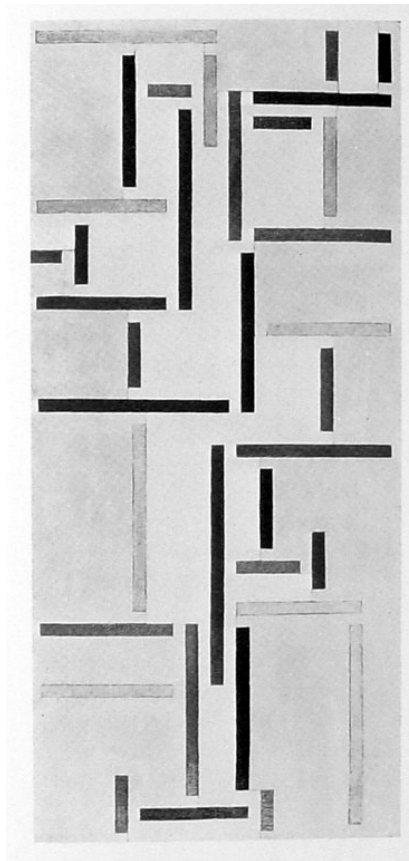


Figure 5.4 Van Doesburg, painting entitled "Rhythm of a Russian Dance," 1918

and De Stijl in terms of abstract composition, ignoring the gap between architecture and fine art. This visual-oriented assessment of the apparent similarity seemed natural and attributable to the abstract expression of the walls, which did not provide a clear idea of freestanding inner partition walls. In 1924, Mies did not yet possess a clear vision of freestanding walls but attempted only to experiment with new building types and presentation techniques. Actually, Mies, for a time, formed a close personal relationship<sup>14</sup> with van Doesburg, so his abstractly presentational expression of the project of the Brick Country House was highly likely to have referred to that of van Doesburg.

As Mies' presentation of the Brick Country House is related to neoplastic expression, led by van Doesburg and Mondrian, critics often expanded the discussion to Mondrian's influence on Mies' overall open plans. For example, when Graeme Shankland posited a relationship between the Mies' idea of the open plan and Mondrian's, Mies firmly denied it, saying

I never make a painting when I want to build a house.<sup>15</sup>

Although the conscious aim of both Mies and Mondrian was towards "universally valid principles"<sup>16</sup> in their works by employing the "artless"<sup>17</sup> formula of abstract forms, Ludwig Hilberseimer argued that "Mies van der Rohe's plans are only a notation of his space concept."<sup>18</sup> Mies' plans, in Hilberseimer's words, were "a part only, a projection, a horizontal section of a three-dimensional whole and cannot therefore be compared with a two-dimensional painting."<sup>19</sup> The plan of the Brick Country House was only a notation with which Mies displayed his idea of spatial openness that he wanted to realize in real space. Although the abstractly notational expression of the project may come from neoplastic artists, one should not evaluate Mies' open plan before experiencing its real

space.

Therefore, it seems inappropriate to treat the Barcelona Pavilion as another example of Neoplastic influence on Mies even though its walls are rhythmically composed, and the expression of the space between the walls is visually similar to that of van Doesburg's *Rhythm of a Russian Dance*. What basically distinguishes the Barcelona Pavilion from De Stijl art is the agreeably environmental spatial physicality. Some spatial areas might tend to be dark due to the shadows of partitioning walls or the remoteness from day lighting. However, the real space of the Barcelona Pavilion is pleasant, as it properly conforms to the depth of daylight and elaborately takes advantage of the reflection of materials such as water, glass, a white ceiling, and polished stone walls (Figure 5.5) as well as an artificially illuminating wall. In particular, the zone of an inner pond (Figure 5.6) can be appreciated from the inside as a mediating and illuminating space, tactfully balanced with the width of the cantilevered roof and the distance from the enclosing glass wall. While experiencing the real space of the Barcelona Pavilion, one can recognize that Mies deliberately composed freestanding walls in order to provide physical agreeableness and spatial dynamic forces between material freestanding walls and bright full glazed walls, so his freestanding walls are not regarded as abstractly aesthetic elements as they are in De Stijl's art.

With the Barcelona Pavilion, Mies clarified the idea of material freestanding walls constituting his open plan, indicating that he started to establish his own principle of tectonically built space free from the misunderstanding found in the abstract composition of De Stijl. While the open architectural plan of Mies is rather easily distinguishable from the artistic approach of De Stijl in that his plan is based on corporal space, it requires



Figure 5.5 Reflection of materials in the German Pavilion,  
International Exposition, Barcelona, 1928-29



Figure 5.6 View of the inner pond of the German Pavilion



more profound spatial understanding to confirm Mies' open plan as clearly distinctive from Wright's open plan. The distinctive characteristics of Mies' plan are in the delicate manipulation of material freestanding walls, such as its spatial orientation and material finishing. (Further details of the difference of both modern masters are stated in Chapter 6.4: Clear Space.)

## **5.2 The Ornamental Effect of Material**

Chapter 5.1 interpreted Mies' awareness on the basis of his related statements that revealed a new idea of the material freestanding wall in the Barcelona Pavilion. This chapter analyzes the spatial purpose of Mies' material freestanding wall in his open plan. If one compares the spatial concept of the Glass Skyscraper project of 1922 to that of the Barcelona Pavilion of 1928, one finds a progression in his art of building that strongly embodies his new spatial concepts, reflected in material freestanding walls.

According to Adrian Forty, architects and critics during the 1920s used the term space in three different senses: "space as enclosure; space as a continuum; and space as an extension of the body."<sup>20</sup> The concept "space as enclosure," established by Semper, signifies inner volumetric space enclosed by a fixed structure, while the concept "space as a continuum" implies infinite space that is continuous between the inside and the outside. The third idea, "space as an extension of the body," is experienced space by a viewer's movement among scattered walls. Moholy-Nagy, who synthesized this third concept that theorists had discussed for thirty years, rejected the "equation of 'space' with 'volume,'"<sup>21</sup> emphasizing the spatial relation and "dynamic fields of force."<sup>22</sup> From the point of view based on Forty's three categories of space, the space of the Glass

Skyscraper remains within the boundaries of concepts such as spatial enclosure and continuum while the space of the Barcelona Pavilion maintains the dynamic forces of space experienced between a few freestanding walls as well as the spatial continuum from the inside to the outside.

In a 1933 manuscript, Mies concretely referred to the second concept as a spatial continuum and the third as spatial dynamism:

Only now can we articulate space freely, open it up and connect it to the landscape.<sup>23</sup>

According to Mies, these two kinds of spatial openness, dynamic space articulated by freestanding walls and continuous space opening towards the outside, were present due to external glass skins, as they “permit a measure of freedom in spatial composition,” so they became the “instruments of a new building art,”<sup>24</sup> as Mies asserted. Analyzing Mies’ descriptions of the Glass Skyscraper project of 1922 and of the 1933 manuscript, one should notice that his approach to the glass skin changed. In his Glass Skyscraper project, Mies used the glass skin to expose “the bold constructive thoughts” of “the high-reaching steel skeletons.”<sup>25</sup> In the 1933 manuscript, he stated the necessity of the glass skin in terms of not only “unambiguous constructive appearance” but also “spatial composition.”<sup>26</sup>

Mies was concerned with the spatial connection between the outer glass skin and the inner freestanding walls. In 1958, he stated this connection in terms of his own principle as follows:

The free plan is a new concept and has its own grammar, like a new language.

Many believe that the free plan means absolute liberty. That is a misunderstanding.

The free plan asks for just as much discipline and understanding from the architect as a conventional plan. The free plan for instance demands that closed elements, which still are a necessity, are set back from the outer walls, as done in the Farnsworth-house. Only in this way one achieves a free space.<sup>27</sup>

In the Museum for a Small City project of 1942, Mies characterized the museum as “the open plan,”<sup>28</sup> which he explained as a space “conceived as one large area, [allowing] every flexibility in use.”<sup>29</sup> Mies explained his open plan (one generally referred to as Mies’ universal space) required freestanding walls separated from the outer glass plane. The outer transparent skin exposes the total interior, so in the inner space it is difficult to prop things up against walls, or to provide visually isolated rooms. In his open plan, the concept of room is transformed into the idea of loosely enclosed space extended to the outside view. Therefore, the visually enclosing and confining purpose of space is imposed upon inner freestanding walls (Figure 5.7): the opaque stony wall is inside the open plan in contrast to the traditional use of stone as an external material.

In the description of the plan of the Museum for a Small City, Mies often referred to freestanding walls, by which the space of building was defined rather than confined:

The architectural space, thus achieved, becomes a defining rather than a confining space.<sup>30</sup>

Mies believed that space enclosed by freestanding walls<sup>31</sup> or by outer transparent glass skins could be characteristically defined beyond being areally zoned. Therefore, the spatial dynamic forces of his open plan originated not only from the compositional arrangement of walls but also from both the changing background of the outside view beyond the glass skin walls (further details are stated in Chapter 6.1: The Background)

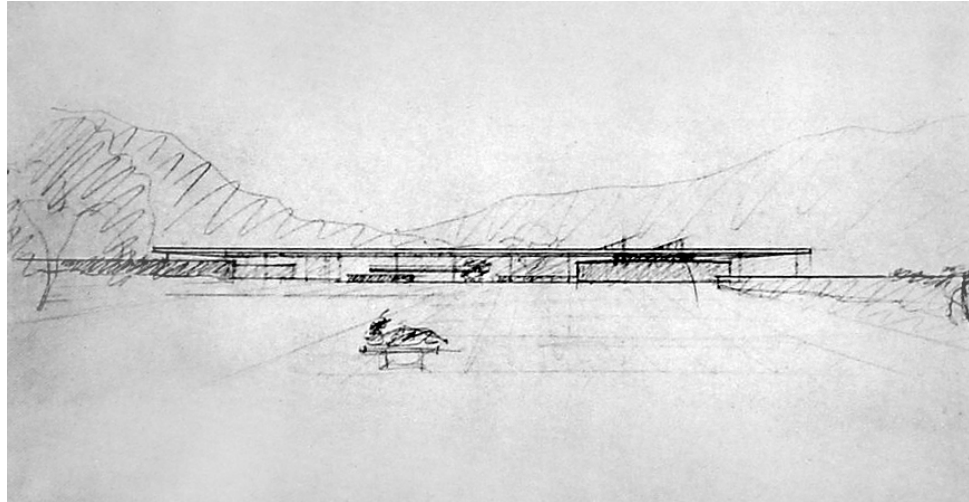


Figure 5.7 Sketch of the external view of the Museum for a Small City project, Chicago, 1943



Figure 5.8 A marble freestanding wall in the New National Gallery, Berlin, 1962-68

and the vivid material effects of freestanding walls. Since their materiality attracts the attention of viewers, the material effects contribute to the spatial characteristics defining the space. The material freestanding walls themselves can be deemed as ornamental in that they are situated as material objects independent of the structural container.

In the New National Gallery, for example, the two dark green marble or *verd-antique* walls (Figure 5.8) in the middle of the space are independent of structure. The stony walls are not stereotomically piled up, but layered with thin slabs. The walls are rather thick<sup>32</sup> but reflective, revealing a contradictory ontology between weightiness and lightness. Both the reflective surface and the pattern of the marble obscure its joints and make the walls seemingly monolithic. Edward R. Ford describes Sullivan's ornaments, independent of constructional constraints, as flowing across joints and surfaces: "His terra cotta blocks are often designed to create the illusion of continuity."<sup>33</sup> Mies' marble walls are also continuously clad following the order of the natural patterns with a minimum width of joints similar to Sullivan's technique for illusive continuity for ornamental effect. While the ornamental effect of Sullivan's technique is based artificial forms, that of Mies' is derived from the irregular veins of natural marble. The joints of the clad slabs become the central axis between most symmetrical patterns: the joint is a generator repeating similar patterns. Mies replaced the traditional form-oriented ornament by a material ornament, creating a new atmosphere, and he contrasted the natural quality of a material with its industrialized, mechanical process by designing sharp cutting edges and sleek cutting phases.

A Miesian ornamental effect is created by not only the natural pattern of Mies'

freestanding walls but also the natural view outside the glazed windows. He, intending to create the ornamental effect originating from both material walls and glazed walls, treated this effect as an artistic effect. For example, in the montage of the project of the Resor House of 1938, Mies juxtaposed Klee's painting with a wood wall and a framed landscape beyond the outer skin of the building. In the project for a Museum for a Small City (Figure 5.9), he created a collage composed of Picasso's "Guernica," Maillol's "Night," and "Young Girl Reclining" with a landscape view and a reflective water image, which are framed by window frames. Nature and the water surface beyond the glass skin are trimmed like a painting, but they cherish their natural materiality as if they were formless, minimal works of art. The naturally patterned walls in the Tugendhat House, whether they are made of stone or wood, may be entitled to be viewed as minimal works of art or at least as ornamental objects beyond the function of partitioning in space.

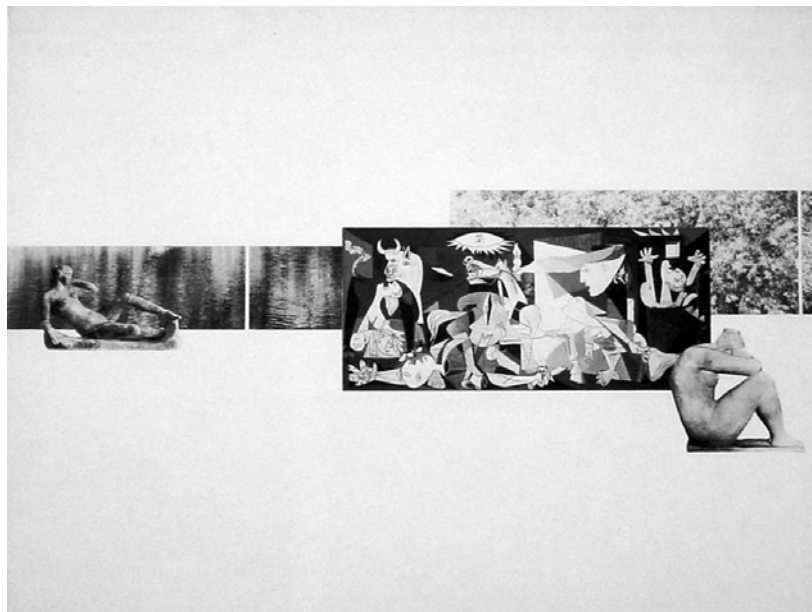


Figure 5.9 Photomontage of the Museum for a Small City project

In that sense, Mies did not regard stone and wood as structural materials but as ornamental ones in contrast to their traditional material use, perhaps because the material strength of stone or wood is weaker than that of reinforced concrete and steel, which Mies used as structural materials. Thin slabs of stone or thin plies of wood encrust the inner structural frames of freestanding walls. The walls, regarded enough to be ornamental, owing to their natural and beautiful patterns, look monolithic and do not expose structural joints. Then how does one assess Mies' principle of ornamental freestanding walls in terms of tectonics? Is it not tectonic in that it conceals the actual structure? Beyond the simple exposition of structure, Carles Vallhonrat refers to the way in which materials "appear as the surfaces that bound space"<sup>34</sup> as the final constituent condition of tectonics, which is the surface effect of space. Semper also focuses on "wall dressings"<sup>35</sup> that create the spatial effect of materials by employing refined techniques that cover tectonic structure. Raising the issue of "the principle of dressing and incrustation,"<sup>36</sup> which veils the inner structure, Semper emphasizes the mastery of the material and its techniques, only through which a building can reach the level of "a high work of art"<sup>37</sup> from that of raw material.

On the other hand, in architecture, space basically signifies "built space."<sup>38</sup> According to Adrian Forty, the concept of space entered the realm of architectural vocabulary by 1920. However, only Frank Lloyd Wright had built structures that incorporated the new open space. Around 1929-30, Mies realized two works, the German Pavilion in Barcelona and the Tugendhat house in Brno, both of which fell under the concept of built space. As Forty indicates, Mies used the term space as the "representative of the 'modern.'"<sup>39</sup> In other words, Mies identified the concept of space with that of his

open plan defined by the combination of a skin and bone structure as a container and material freestanding walls as compartements. The tectonically framing structure covered with lightweight glass skin enclosed interior space, but Mies' skin and bone structure does not visually confine inner space due to full glazed skin. Moreover, the interior space is partially zoned but characteristically defined by material freestanding walls, made of a tectonically encrusted built type rather than a stereotomically bearing type. In brief, Mies established his own concept of built space by employing a tectonic structure covered with glass and tectonic freestanding walls incrustated with ornamental materials. Mies' open plan reveals a high level of tectonic manipulation. Mies' built space was more dynamic and characteristic because he established new principles of material use and demonstrated an ornamental level of material choice, composition, and finishing in making material freestanding walls. His detailed manipulation of material as ornament is so refined and subtle that one cannot completely imagine his space only in the plan or the elevation. Only through the personal experience of his built space can one fully understand the intention of his art of building.

### **5.3 The Sleekness of Material**

Since Mies published his idea of the Glass Skyscraper in 1922, one of his lifelong concerns in the creation of his built space has been the sleekness of material. Mies approached the issue of material sleekness by creating glassy reflection, brickly evenness, silky luster, wooden flatness, chromium shininess, stony polish, and steel smoothness with concealed joints, which provided a continual focal point in which Mies intrinsically



developed his art of building. However, some do not agree that Mies maintained architectural continuity in his career. For example, Kenneth Frampton believed he demonstrated his architectural characteristics in five diverse phases: “the Schinkel-esque period (1911-1915), the G group period (1919-1925), the European transcendental phase (1925-1938), the IIT period (1938-1950), and finally his monumental technocratic practice”<sup>40</sup> (1950-1969). Frampton followed the chronological order of Mies’ works in terms of Western architectural history rather than their intrinsic quality, characterizing Mies’ concerns as “divergent.”<sup>41</sup>

Edward R. Ford clearly divided Mies’ architecture into two stages called “European Mies” and “American Mies,” both of which were based on the concept of space and time: “There have always been two Mies van der Rohes. There was the European Mies, who did many projects and built little, and there was the American Mies, who built one major building a year from 1950 till his death in 1969. . . . The European buildings were irregular, asymmetrical, fragmented, and touched by Expressionism and De Stijl; the American buildings were regular, symmetrical, and complete and recalled the work of Schinkel.”<sup>42</sup> Both Frampton and Ford believed that Mies’ career constituted contrasting phases and employed, during one period, the architectural style of Karl Friedrich Schinkel. However, they differed with regard to chronology: Frampton identified Schinkel’s style<sup>43</sup> in the earliest architecture of Mies while Ford connected Schinkel’s form in the later American buildings of Mies.

Thus, one might ask whether Schinkel was architect that most influenced Mies. Peter Carter argued that Louis Sullivan, Karl Friedrich Schinkel, Peter Behrens, Hendrick Petrus Berlage, and Frank Lloyd Wright were Mies’ reference group, responding to

“comments that he [Mies] learned great form from Behrens and great structure from Berlage, we could add that Mies learned about space from Wright and about the tectonics of architecture from Schinkel.”<sup>44</sup> Among these names, one can find Berlage (1856-1934), whom Mies regarded as influential, confessing in one conversation with Ronald Lewcock as follows:

You know, I learnt a great deal from Berlage and admired him very much, but he never taught me.<sup>45</sup>

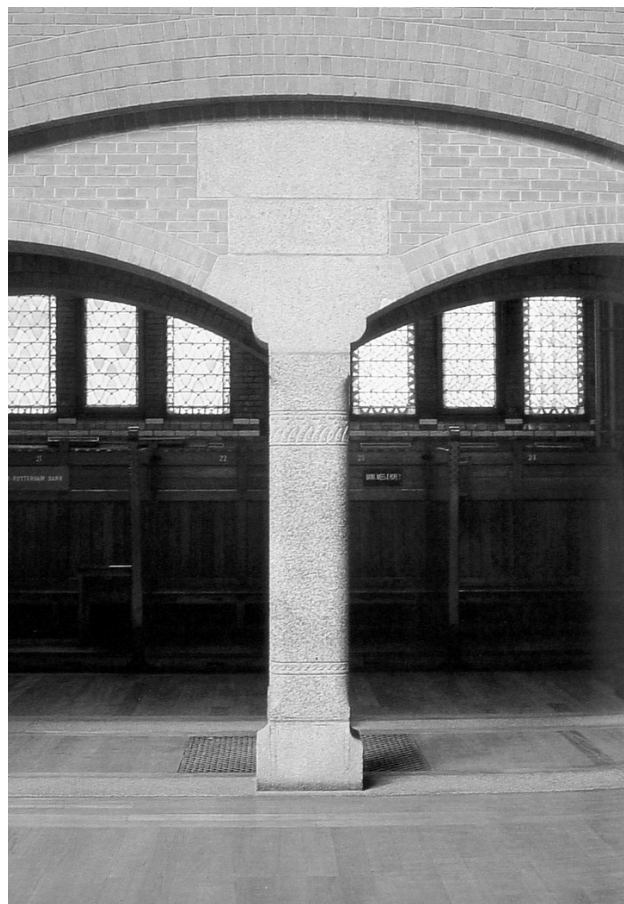


Figure 5.10 Sleek finish of the column and the arches of Hendrik Petrus Berlage, Stock Exchange, Amsterdam, 1897-1904

Mies took the works of Berlage as an example of his “clear construction”:

Berlage was a man of great seriousness who would not accept anything fake and it was he who said that nothing should be built which is not clearly constructed. . . .

The idea of a clear construction came to me there, as one of the fundamentals we should accept.<sup>46</sup>

Mies seemed to find modern clear construction in Berlage’s *De Beurs* (The Stock Exchange, 1898-1903), stressing the expression “to the last detail.”<sup>47</sup>

Peter Carter refers to a note in which Mies told how Berlage’s material details struck Mies when he visited the Stock Exchange before 1912:

How sensible is this small handy shape, so useful for every purpose! What logic in its bonding, pattern, and texture! What richness in the simplest wall surface!

But what discipline this material imposes!<sup>48</sup>

Such exclamations were particularly surprising in light of Mies’ normally taciturn character. What impressed him was Berlage’s material construction, which revealed the sleek surface (Figure 5.10) through the refined manipulation of brick bonding. Berlage expressed his concern with material construction by stressing that modern walls should reveal sleekness, saying “Before all else the wall must be shown naked in all its sleek beauty. . . .”<sup>49</sup>

Sigfried Giedion explained how Berlage accomplished the “unity of the flat surface,” referring to his assertion that “Pillars and columns should have no projecting capitals: the joint should be fused with the flat surface of the wall.”<sup>50</sup> In order to maintain the inherent textual richness of brick bonding and at the same time the literal expression of the distribution of forces in the wall, Berlage used stone for lintels, sills, imposts, and

keystones, maintaining the flatness in the masonry, because the use of brick may have been inappropriate.<sup>51</sup> Besides showing the constructional clarity of each material, Berlage attempted to create material sleekness in a newly modern material sense by claiming with confidence “the quality which distinguishes old monuments from the building of today: quiet!”<sup>52</sup> Mies also exclaimed that Berlage’s Stock Exchange was a “really modern building”<sup>53</sup> in that it had nothing to do with classicism or historicism. After the visit to the Stock Exchange, Mies may have been impressed by Berlage’s material “sobriety,”<sup>54</sup> arguing that “the art of building starts by putting two bricks carefully together.”<sup>55</sup>

In Mies’ three brick houses between 1925 and 1929, the brick wall exposed its calm sleekness. Kenneth Frampton called Mies’ attachment to materiality and the craftsmanship associated with it “tectonic probity.”<sup>56</sup> Philip Johnson connected the material art of construction to Berlage, asserting that “Mies, with his Berlagian approach, appreciated the fact that brick was a structural material that did not need to be concealed. He appreciated the regular rhythm achieved by the repetition of a module and enjoyed the craftsmanship involved in the coursing and bonding. His admiration led him to extraordinary measures: in order to insure the evenness of the bonding at corners and apertures, he calculated all the dimensions in the brick lengths and occasionally went so far as to separate the under-fired long bricks for the over-fired short ones, using the long in one dimension and the short in the other.”<sup>57</sup>

Like Berlage’s art of construction, Mies’ art of building was based on material construction in which brick walls were built with extraordinary integrity for surface evenness. In the boundary of Mies’ approach to material sleekness, the evenness of bricks produced a quality similar to a stony polish. Although the freestanding walls of the

Barcelona Pavilion were clad with stone rather than piled up with brick, the stony walls were also sleek due to the minimum width of joints as well as surface finish. The material sleekness of stone may be what Mies regarded as the “new principle”<sup>58</sup> of freestanding walls that he discovered one evening in 1928. This assumption may be justified by a continual series of attempts by Mies to demonstrate material sleekness after the Glass Skyscraper of 1922. Although Mies recognized the glassy effect of “a rich interplay of light reflections”<sup>59</sup> during experiments with a glass model around 1922, he initially used stone as a reflective material when he created the freestanding walls of the Barcelona Pavilion.

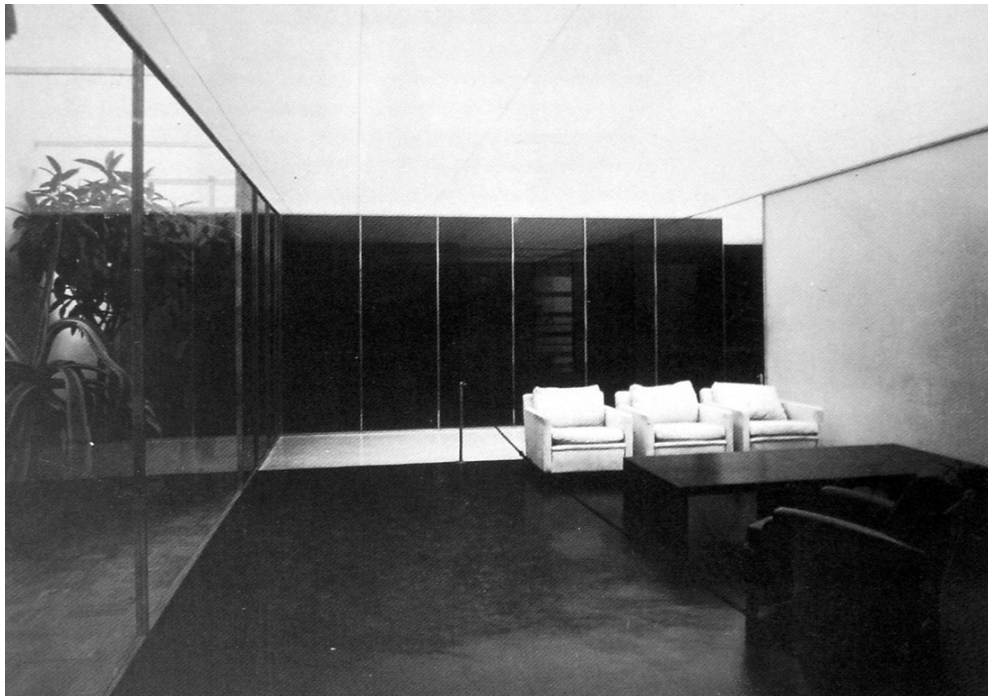


Figure 5.11 Mies and Lilly Reich, Glass Room,  
*Die Wohnung* (the dwelling) Exhibition, Stuttgart, 1927

Before the new discovery of the freestanding onyx wall of 1928, Mies, along with Lilly Reich,<sup>60</sup> exhibited freestanding glass walls in the Glass Room (Figure 5.11) at the 1927 Stuttgart Werkbund Exhibition, in which he displayed diverse tones and textures of glass walls: painted in mouse gray or olive green and etched on one or both sides with different degrees of transparency.<sup>61</sup> Mies designed the hall with the idea of the open plan, which is loosely divided with freestanding glass walls into three areas for working, living, and dining. However, according to Wolf Tegethoff, the various applications of glass appeared to be too “flashy” to the patrons of the Barcelona Pavilion, who answered “We don’t know--just build a pavilion, but not too much glass!”,<sup>62</sup> when Mies questioned the image and the purpose of the pavilion. Mies should not have used glass as the main material of his free-standing walls in the Barcelona Pavilion, but instead, he should have found a new material that was less flashy than glass to create the spatial effect of his open plan.

Mies finally discovered a new potential of the material for freestanding walls in polished marble, which reflects but whose effects are less flashy and more solidly sleek. Stone masonry construction was familiar to Mies, who learned how to build from his father, a master stonemason who operated a small shop for stone cutting. The clear cutting edge and the sleek surface of marble evoke the machine-like sense connected to modern preciseness and demystification, also found in steel and glass, true “machine-made materials”<sup>63</sup> and Mies’ major materials. Although the surface of the onyx wall is plain, it is not monotonous, thanks to its veins that hint of a naturally transforming pattern. This particular section exposes natural touches of marble formed over a long period. Referring to Berlage’s Stock Exchange, Mies exclaimed “what richness in the simplest

wall surface!” Then, Mies also succeeded in creating another simple but rich wall in the Barcelona Pavilion. Noting the modern sense of material construction free from historic styles in Berlage’s Stock Exchange, he stressed the contribution of Berlage to both modern art of construction and Mies’ art of building:

What interested me most in Berlage was his careful construction, honest to the bones. And his spiritual attitude had nothing to do with classicism, nothing to do with historic styles altogether. It was really a modern building. After Berlage, I had to fight with myself to get away from the classicism of Schinkel. And after the war, I think in 1919, I tried to do a triangular glass building.<sup>64</sup>

What Mies appreciated in Berlage’s building was the clear construction and material approach to the modern taste for sleekness, two interrelated concepts free from subjective arbitrariness and based on the art of material construction. In the modern material sense, Berlage created the sleekness of the brick wall with the flat shape of stone joints while Mies created material sleekness by concealing joints. According to Edward R. Ford, Mies had a great ability to accept conditions adverse to his idea and to suggest flexible solutions, but he kept the concealment of joints inviolate, “a constant thread running through all Mies’s work.”<sup>65</sup> Mies’ major buildings are based on a tectonically framing structure, so the linear members are naturally connected with joints. In contrast to the generally tectonic approach of exposing joints, Mies’ material sleekness prevailed over the structural logic expressed by joints. Mies continually attempted to create material sleekness by demonstrating it through diverse materiality in important projects and buildings: glassy reflection in the photograph of a model of the Glass Skyscraper of 1922, silky luster in the Silk Exhibition of the Exposition de la Mode of 1927 in Berlin,

chromium shininess and stony polish in the Barcelona Pavilion of 1929, steel smoothness with concealed joints in the wide-span buildings of Mies' American period as well as bricky evenness in his three brick houses between 1925 and 1929.

For the material of freestanding walls, Mies preferred polished marble because of its sleekness, which, as a single effect, revealed aesthetic sensation, technological sharpness, and tectonic minimalism in a body of a material freestanding wall. The material sleekness of Mies' buildings may become the critical proof that reveals his continual concerns for the establishment of modern material sense free from the revival of classical romanticism in contrast to the point of view of Kenneth Frampton, who characterized Mies' career as both divergent and a constant struggle between the three factors: "the technological capacity of the epoch, the aesthetics of avant-gardism, and the tectonic legacy of classical romanticism."<sup>66</sup>



- <sup>1</sup> Mies did not use the general term “universal space” to indicate that which he created later in his career in America but called it an “open room,” “open plan,” or “free plan.” One can find the term “open room” in Mies van der Rohe’s “The H. House, Magdeburg,” *Die Schilgenossen* 14, no.6 (1935). Republished by Fritz Neumeyer (1991), 314; “open plan” in Mies van der Rohe’s “Museum for a Small City,” *Architectural Forum* 78, no.5 (1943): 84; “free plan” in Mies van der Rohe, Statements collected by Christian Norberg-Schulz, “Talks with Mies van der Rohe,” *L’Architecture d’aujourd’hui* 79 (September 1958):100.
- <sup>2</sup> Richard Padovan, “Machines à méditer,” in *Mies van der Rohe: Architect as Educator*, ed. Rolf Achilles et al. (Chicago: the University of Chicago Press, 1986), 23.
- <sup>3</sup> Mies van der Rohe, *Six Students Talk with Mies*, North Carolina State College (Spring 1952). Reported in Richard Padovan, “Machines à méditer” (1986), 23.
- <sup>4</sup> Sonit Bafna, *A Morphology of Intentions: The Historical Interpretation of Mies van der Rohe’s Residential Designs* (A doctoral dissertation at the Georgia Institute of Technology, 2001), 211-12. Sonit Bafna argues that the concept of a free standing wall was not new in 1928 as Mies had demonstrated a freestanding wall in his Brick House of 1923. As the walls of the Barcelona Pavilion are not practically free from structural load, Bafna interprets Mies’ discovery of the freestanding wall from the compositional point of view. He argues that, Mies, in the Barcelona Pavilion for the first time deployed “walls and partitions freely without worrying about their effect on the overall massing.”
- <sup>5</sup> Mies van der Rohe, “Mies Speaks: I Do Not Design Buildings. I Develop Buildings,” *Architectural Review* 145 (Dec. 1968): 451.
- <sup>6</sup> Robin Evans, “Mies van der Rohe’s Paradoxical Symmetries,” *AA files* 19 (Spring 1990): 63.
- <sup>7</sup> Mies van der Rohe, reported by Peter Carter, “Mies van der Rohe: An Appreciation on the Occasion, This Month, of His 75th Birthday,” *Architectural Design* 31, no.3 (Mar. 1961): 100.
- <sup>8</sup> Mies van der Rohe, Reported in Peter Carter, 100.
- <sup>9</sup> Andres Lepik, “Mies and Photomontage, 1910-1938,” in *Mies in Berlin*, ed. Terence Riley and Barry Bergdoll (New York: the Museum of Modern Art, 2001), 328.
- <sup>10</sup> Randall Ott, “Reflections on the Rational and the Sensual in the Work of Ludwig Mies van der Rohe,” *Arris: Journal of the Southeast Chapter of the Society of Architectural Historians* 4 (1993): 42-45.
- <sup>11</sup> One of American critics’s statement, quoted in Dietrich Neumann, “Glass Skyscraper Project,” in *Mies in Berlin*, ed. Terence Riley and Barry Bergdoll (New York: the Museum of Modern Art, 2001), 186.
- <sup>12</sup> Mies van der Rohe, “Office Building,” *G*, no.1 (July 1923): 3. Republished by Fritz Neumeyer, 241.
- <sup>13</sup> Detlef Mertins, “Architectures of Becoming: Mies van der Rohe and the Avant-Garde,” in *Mies in Berlin*, 124.
- <sup>14</sup> Wolf Tegethoff, *Mies van der Rohe: the Villas and Country Houses* (New York: the Museum of Modern Art, 1985), 51.
- <sup>15</sup> Mies van der Rohe, Interview of the BBC Third Program (1959). Reported by Peter

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- Carter, *Mies van der Rohe at Work* (New York: The Pall Mall Press, 1974), 180.
- <sup>16</sup> I used Fritz Neumeyer's expression that describes Mies' architecture. Fritz Neumeyer, *The Artless Word: Mies van der Rohe on the Building Art*, translated by Mark Jarzombek (Cambridge: The MIT Press, 1991), xiii.
- <sup>17</sup> Op. cit. 27.
- <sup>18</sup> Ludwig Hilberseimer, *Mies van der Rohe*, (Chicago: P. Theobald, 1956), 42.
- <sup>19</sup> Ibid.
- <sup>20</sup> Adrian Forty, *Words and Buildings-A Vocabulary of Modern Architecture* (New York: Thames and Hudson, 2000), 266.
- <sup>21</sup> Op. cit. 267.
- <sup>22</sup> L. Moholy-Nagy, *The New Vision* (New York: Wittenbone, 1947), 62.
- <sup>23</sup> Mies van der Rohe, "What Would Concrete, What Would Steel Be without Mirror Glass?" (a Manuscript of 1933). Published by Fritz Neumeyer, 314.
- <sup>24</sup> Ibid.
- <sup>25</sup> Mies van der Rohe, "Skyscrapers," published in without title in *Frühlicht* 1, no.4 (1922): 122-124. Republished by Fritz Neumeyer, 240.
- <sup>26</sup> Mies van der Rohe, "What Would Concrete, What Would Steel Be without Mirror Glass?," manuscript (1933). Published by Fritz Neumeyer, 314.
- <sup>27</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100.
- <sup>28</sup> Mies van der Rohe, "Museum for a Small City," *Architectural Forum* 78, no.5 (1943): 84.
- <sup>29</sup> Ibid.
- <sup>30</sup> Ibid.
- <sup>31</sup> Mies regards both inner independent walls and exterior walls that enclose the outer courts as freestanding walls.
- <sup>32</sup> Inside the walls, air ducts are furnished.
- <sup>33</sup> Edward R. Ford, *The Details of Modern Architecture* (Cambridge: MIT Press, 1990), 11.
- <sup>34</sup> Carles Valhonrat, "Tectonic Considered, Between the Presence and the Abstract of Artifice," *Perspecta* 24 (1988): 123.
- <sup>35</sup> Gottfried Semper, *The Four Elements of Architecture and Other Writings*, translated by Harry F. Mallgrave (Cambridge: Cambridge University Press, 1989), 254.
- <sup>36</sup> Op cit. 248.
- <sup>37</sup> Op cit. 258.
- <sup>38</sup> Adrian Forty, *Words and Buildings-A Vocabulary of Modern Architecture* (New York: Thames and Hudson, 2000), 265.
- <sup>39</sup> Op. cit. 268
- <sup>40</sup> Kenneth Frampton, 159.
- <sup>41</sup> Ibid.
- <sup>42</sup> Edward R. Ford, 261.
- <sup>43</sup> Barry Bergdoll, "Schinkel and Mies: Nature's Perspective," *A+U* 388 (January 2003): 12-14. Bergdoll also tries to search for the influence of Schinkel in terms of spatial atmosphere commanding natural panorama not only in the early pre-modern houses but also in the Barcelona Pavilion and the Tugendhat House.
- <sup>44</sup> Peter Carter, "Reflections on Mies," *Inland Architect* 36 (May/June 1992): 50-51.

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- <sup>45</sup> Mies van der Rohe, Interview by Ronald Lewcock, Conversation between Ludwig Mies van der Rohe and Ronald Lewcock (1964), Manuscript.
- <sup>46</sup> Peter Carter, "Mies van der Rohe: An Appreciation on the Occasion, This Month, of His 75th Birthday," *Architectural Design* 31, no.3 (March 1961): 97.
- <sup>47</sup> Ibid. See Appendix.
- <sup>48</sup> Mies van der Rohe, "Inaugural Address as Director of Architecture at Armour Institute of Technology"(1938), in *Mies van der Rohe* by Philip Johnson (New York: The Museum of Modern Art, 1947), 193.
- <sup>49</sup> Hendrick Petrus Berlage, *Gedanken über Stil in der Baukunst*. Quoted in *Modern Architecture: A Critical History* by Kenneth Frampton, 71.
- <sup>50</sup> Hendrick Petrus Berlage, *Gedanken über Stil in der Baukunst*. Quoted in, *Space, Time and Architecture: the Growth of a New Tradition* by Sigfried Giedion (Cambridge: Harvard University Press, 1949), 246.
- <sup>51</sup> Peter Carter, "Reflections on Mies," *Inland Architect* 36 (May/June 1992): 50-51.
- <sup>52</sup> Hendrick Petrus Berlage, quoted by Sigfried Giedion, 246.
- <sup>53</sup> Mies van der Rohe, "Mies Speaks: I Do Not Design Buildings. I Develop Buildings," *Architectural Review* 145 (Dec. 1968): 451.
- <sup>54</sup> I use Kenneth Frampton's expression of Mies' brick buildings in *Studies in Tectonic Culture: the Poetics of Construction in Nineteenth and Twentieth Century Architecture* by Kenneth Frampton, 169.
- <sup>55</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100.
- <sup>56</sup> Kenneth Frampton, 169.
- <sup>57</sup> Philip Johnson, *Mies van der Rohe*, (New York: The Museum of American Art, 1947), 35.
- <sup>58</sup> Richard Padovan, "Machines à méditer," in *Mies van der Rohe: Architect as Educator*, 23.
- <sup>59</sup> Mies van der Rohe, "Skyscrapers," published in without title in *Frühlicht* 1, no.4 (1922): 122-124. Republished by Fritz Neumeyer, 240.
- <sup>60</sup> Caroline Constant, "The Barcelona Pavilion as Landscape Garden: Modernity and the Picturesque," *AA files* 20 (Autumn 1990): 51. Caroline Constant stresses Lily Reich's contribution to Mies' obsession with the sleek property of materials: "Mies's experience as a youth of assisting in the family marble atelier in Aachen, and his early admiration for the work of Schinkel and Berlage, undoubtedly contributed to his obsession with the visual properties of materials. A more direct influence, however, was his collaboration during the 1920s and 1930s with Lily Reich, a textile and fashion designer, and fellow member of the Deutscher Werkbund, with whom he designed a number of exhibition installation, including that in Barcelona. Their Silk and Velvet Café at the 1927 Berlin fashion exposition, which celebrated the fluid, diaphanous and reflective properties of these fabrics, was a significant precursor to the Barcelona Pavilion, where Mies achieved similar effects with the solidity to marble, steel and glass."
- <sup>61</sup> Wolf Tegethoff, *Mies van der Rohe: the Villas and Country Houses* (New York: the Museum of Modern Art, 1985), 68.
- <sup>62</sup> Interview with Mies van der Rohe, in "Mies van der Rohe: Modern Classicist," by Katharine Kuth, *Saturday Review* 48 (1965): 22-23.

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<sup>63</sup> I use Philip Johnson's expression in Philip Johnson, 22.

<sup>64</sup> Mies van der Rohe, "Mies Speaks: I Do Not Design Buildings. I Develop Buildings," *Architectural Review* 145 (Dec. 1968): 451

<sup>65</sup> Edward R. Ford, 263.

<sup>66</sup> Kenneth Frampton, 159.

## **CHAPTER 6**

### **CONCEPTS OF “CLEAR SPACE”**

#### **6.1 Mies’ Statements on Space**

This Chapter 6 identifies the concepts of Mies’ clear space by examining the possibilities that his clear space may have been influenced by Lao-tzu’s concept of voids. Before discussing Mies’ clear space, this chapter attempts to reveal a progressive change of Mies’ statements on space towards more refined concepts of clear space. Mies argued that the objective of his art of building was “spatial” expression, which architects consciously intend to create beyond the satisfaction of material needs:

The building art is man’s spatial dialogue with his environment and demonstrates how he asserts himself therein and how he masters it. For this reason, the building art is not merely a technical problem nor a problem of organization or economy.

The building art is in reality always the spatial execution of spiritual decisions.<sup>1</sup>

Mies often<sup>2</sup> used the term spatial by combining it with the term spiritual. Before revealing the changed phases of Mies’ spatial concepts, it may be meaningful, by examining Mies’ term spiritual, to propose that the term spiritual signifies a heightened consciousness of creativity through which architects try to provide new spatial experience. Mies, searching for a new way in which he could architecturally exploit in his new

environment based on new industry, technology and economy, stressed the importance of heightened consciousness rather than pure intellect:

It must be possible to heighten consciousness and yet keep it separate from the purely intellectual. It must be possible to let go of illusions, see our existence sharply defined, and yet gain a new infinity, an infinity that springs from the spirit.<sup>3</sup>

In the foreword to the Official Catalog of the Stuttgart Werkbund Exhibition of 1927, Mies, recognizing that the problems of new housing were rooted in the changed structure of his time beyond those of simple rationalization and typification, asserted that the problem of new housing was basically a “spiritual problem”<sup>4</sup> and only an element among the larger problems of new forms of living. Then, in foreword to *Bau and Wohnung* (Building and Housing) of the same year, Mies revealed that the spiritual problem could be solved by “creative forces” rather than intellectual organization such as simple rationalization and typification, which were the current architectural slogans of his time, as he wrote the following:

It is not entirely useless to specifically emphasize today that the problem of the new housing is a problem of the building art, in spite of its technical and economical aspects. It is a complex problem and therefore can only be solved by creative forces rather than by calculation or organization.<sup>5</sup>

Mies, regarding the problem of the new housing as an example that represented the complex problems of the art of building of his time, stressed the critical necessity of heightened creative forces as the ultimate solution for the entangled matters of constructional reality. In another his statement of 1927, Mies again argued that through

spatial creativity rather than rational process of construction could architects achieve solutions for the problems of the art of building:

Next to them [rationalization and typification], or above them, stands the spatial problem that can only be solved by creativity rather than by calculation or organization.<sup>6</sup>

In brief, Mies, having recognized the importance of spirit or heightened consciousness of creativity through his experience of the Stuttgart Werkbund Exhibition of 1927, attempted to master his art of building by searching for a creative form of space which could not only contain a new style of dwelling but also reflect a constructional environment based on new industry, technology and economy. Mies wrote of the connection among building, construction, and a spatial form:

Building, where it became great, was almost always indebted to construction, and construction was almost always the conveyor of its spatial form.<sup>7</sup>

In contrast to tectonic theorists who regard construction as simply material organization independent of an architect's spatial approach, Mies argued that a great building that reached the level of the art of building was almost always designed by an architect who could anticipate the final spatial image after construction. From his account above, one may deduce that the goal of his art of building was to provide people with a spatial experience even though a great building is constructed with materials: construction is meaningful only when its spatial form goes beyond material organization. Therefore, in order to reach the level of the art of building, architects should be conscious of their new reality including the constructional restrictions of their time, conceive innovative ideas of space, and manifest their creative mastery of built space through construction. By

heightening the consciousness of creativity, Mies actually created his own types of spatial design.

As Chapter 3 described, Mies developed three attitudes towards his spatial organization, which this dissertation has called flowing space, dynamic space, and clear space. From the point of view of spatial openness, one can see that Mies' spatial concerns moved from the effect of inner, loose space in "flowing space" to that of open space extending to the landscape beyond full, high glazed walls in "dynamic space," as evidence in two of his statements:

I have abandoned the usual concept of enclosed rooms and striven for a series of spatial effects rather than a row of individual rooms.<sup>8</sup> (the Brick Country House project, 1924).

They [the glass walls] permit a measure of freedom in spatial composition that we will not relinquish any more. Only now can we articulate space freely, open it up and connect it to the landscape. <sup>9</sup> (Manuscript: "What Would Concrete, What Would Steel Be without Mirror Glass?," 1933)

In 1924, Mies attempted to create an open plan by abandoning the traditional form of individual rooms and freely composing masonry walls. After his first awareness of 1926, he experimented with three types of spatial design: During the study of the Barcelona Pavilion of 1928, he innovatively conceived a freestanding onyx wall that dynamically articulated inner space and produced a dynamic force between the material and compositional effects of the wall itself and the outside effect of the bright landscape beyond full glazed walls. In his 1933 manuscript, Mies stressed the importance of the exterior full glazed walls, stating that his open plan could not fully exist without the glass



walls entirely open to the landscape.

Mies' account above reminds one of a part of Chapter 11 of Lao-tzu's *Tao Teh King*: "We make doors and windows for a room; but it is these empty spaces that make the room livable."<sup>10</sup> Since around 1930 he knew Karlfried Graf Dürckheim, who was well acquainted with Lao-tzu's philosophy, Mies may also have been in contact with both Chapter 11 of Lao-tzu, which stresses the importance of open view, and that author's philosophy, which mainly describes the potential of spontaneous forces or nature. This study proposes the idea that Mies may have employed Lao-tzu's philosophy for the higher mastery of his open plan on the following grounds: Although Mies successfully established his architectural identity in his dynamic spaces around 1930, his spatial form gradually changed from dynamic space to clear space. He attempted to create more and more extroverted space, but this dissertation finds two stages--simply extroverted space and then tectonically extroverted space--in which Mies may well have applied Lao-tzu's philosophy to his open plan as evidence in two of his descriptions:

The beautiful view was to the east; to the south the view was dull, almost disturbing. This defect would have had to be corrected by the building plan. For that reason I have enlarged the living quarters by a garden court surrounded by a wall and so locked out this view while allowing full sunshine. Toward the river the house is entirely open and melts into the landscape. Thereby I not only entered into the situation but obtained a beautiful alternation of quiet seclusion and open spaces.<sup>11</sup> (the Hubbe House, 1935)

Interior sculptures enjoy an equal spatial freedom, because the open plan permits them to be seen against the surrounding hills. The architectural space, thus

achieved, becomes a defining rather than a confining space. A work such as Picasso's *Guernica* has been difficult to place in the usual museum gallery. Here it can be shown to great advantage and becomes an element in space against a changing background.<sup>12</sup> ("Museum for a Small City" Project, 1943)

In the comparison between Mies' account of 1935 and that of 1943 above, one finds that he did not use the words "open" and the "landscape" but "changing" and the "surrounding hills" in his description of 1943. One should note the change of Mies' attitude towards nature in the creation of his open plan as he did not use from 1943 the term landscape in the description of his open plans. The meaning of landscape includes both humanized landscape and natural landscape and also Mies' term landscape included both meanings of the landscape. Moreover, his term landscape signified an aesthetic representation in which natural scenery is the main subject of a beautiful "view" as one see in the description of his Hubbe House of 1935. In other words, Mies accepted the landscape outside as a vista complementary to characteristic material freestanding walls for the enhancement of dynamic forces in the interior space of his open plans.

He regarded the landscape outside of the glazed skin as a "view" aesthetically providing spatial continuity in 1935, while he revealed the surrounding hills as a naturally "changing" element in 1943. Thus, Mies began to more profoundly recognize the meaning of nature as a living and spontaneous force in his clear space. Lao-tzu, emphasizing the spontaneous force of Tao, said that "All-pervasive and inexhaustible, it is the perpetual source of everything else. For want of a better name, I call it 'Nature' [Tao]."<sup>13</sup> In *Tao Teh King*, which Mies had, the author interprets Tao as "Nature" with a capital "N." Although Tao actually signifies more intangible meanings than nature, Mies

as an architect may have regarded the spontaneous phenomena of nature through glazed walls as the most potential force in his clear space. The more deeply he recognized the meaning of nature, the more “tectonic” his buildings became: the exterior walls of them became more reliant on the art of framing construction. While in the Hubbe House of 1935, Mies designed a simply extroverted open plan to the beautiful landscape outside, in the Museum for a Small City Project of 1943, he attempted to create a tectonically extroverted open plan in order to fully accept the spontaneous and inexhaustible force of nature by designing his buildings based on the art of framing construction.

By comparing Mies’ dynamic space before 1930 with his clear space of the Museum for a Small City Project of 1943, one finds in his dynamic space that his material freestanding wall<sup>14</sup> serves as not only the background of the Kolbe figure in the Barcelona Pavilion but also an anthropomorphic sculpture in the sketch of the Tugendhat House. Mies, intending that his material freestanding walls serve as the background for sculptures in his two successful buildings, maintained the relationship between the form and the ground, but the surrounding hills outside exterior glazed walls replaced material freestanding walls as the ground in the Museum for a Small City” Project of 1942 (Figure 5.9). As all exterior walls are made of glass, inner space is not visually confined but extended to the surrounding hills beyond the glazed walls. Accordingly, architectural space “becomes a defining rather than a confining space” as Mies described above. He suggested a new concept of space in which works of art, instead of being situated in a confined, limited space, were set in a space that enhanced their characteristics by continuously changing space that provided the background. Intending that people experience the surrounding hills beyond the glazed walls as the “changing background”

of works of art, Mies defined his space as changing by drawing living nature into inner space. In his later buildings, one finds that he focused more and more on clear space maximally undetermined and at the same time actively accepting a changing nature outside.

In an interview of 1959, when Graeme Shankland raised the problem of the open plan applied to the Farnsworth House, Mies answered as follows:

No, the Farnsworth house is, I think, not really understood. I was in the house from morning to evening. I did not know how colourful nature really was. But you have to be careful in the inside to use neutral colours, because you have the colours outside. These always change and I would say it is beautiful.<sup>15</sup>

Mies, appreciating constantly changing nature outside architectural frames, explained that he had painted the frame color of the house white as a contrast with the green background of nature in the country and tall glass buildings black as a contrast with the sky background of nature in the city. Mies knew that one could “see the sky, and even the city, changing every hour.”<sup>16</sup> Mies, drawing the attention of the viewers inside towards the nature outside, believed in the art of framing construction through which he attempted to create a higher unity between framing architecture and framed nature. Mies, recognizing the potential of nature as a crucial element of his building art, not only painted his architecture with neutral tones of color but also created it as a series of “neutral frames.”<sup>17</sup> In other words, he designed his buildings of clear space to have the neutral appearance of “almost nothing” harmonize with nature. Mies, in order to bring out changing nature in his framed buildings, not only painted them in neutral colors but also created the following characteristics of the neutral frame: minimal and seamless

frames, unadorned plate glass, the combination of transparent and translucent glass, and above all, clear space itself. (This chapter will further discuss these issues. Also refer to the concept of self-effacing architecture in Chapter 7.4).

This chapter attempts to investigate that Mies' terms, the "changing background" of nature and the "neutral frame" of architecture, are related to Lao-tzu's philosophy of voids by drawing a parallel between Mies' clear space and Lao-tzu's voids. Actually, Mies did not use the general term universal space, which critics coined later in his career in America, but instead used the terms "open room,"<sup>18</sup> "open plan"<sup>19</sup> or "free plan."<sup>20</sup> Earlier in 1930, he referred to "clear spaces,"<sup>21</sup> indicating not only the undivided volume of interior space but also the undifferentiated expanse between interior and exterior space. This dissertation refers to a glazed single-volume of Mies' space as clear space, as it claims that the open plan includes not only clear space but also flowing and dynamic spaces.

The remainder of Chapter 6 is divided into the following sections: Mies' dynamic space, Lao-tzu's void, and Mies' clear space. The purpose of this division is to distinguish between Mies' spatial intention of dynamic space and that of clear space. With regard to dynamic space, Mies may have succeeded in establishing his architectural identity as a modern master of space before he became acquainted with Lao-tzu's philosophy; however, it is proposed that, after he incorporated the void of Lao-tzu, Mies intended to reveal the potential of framed nature in his clear space. This chapter attempts to interpret the most well-known aphorism of Mies "less is more" in terms of space. While in his dynamic space, his "less is more" is applied to a relationship between the free form of an artistic status and the neutral form of stereotomic walls, in his clear space,

the philosophy is applied to a relationship between neutral frames and potential nature beyond the frames, as he no longer used statues as focal points of space but intended to have viewers contemplate the extroverted view of his clear space (although in the case of museum, one can find presumable statues in the presentation of his montages). Between the two sections on dynamic space and clear space is a section that interprets Lao-tzu's voids in terms of architectural space and places in parallel the architectural conceptualization of Mies' phrase "almost nothing" with statements from the *Book of Lao-tzu*, composed of eighty-one chapters constructed in poetic form. The phrases constituting the work are ambiguous, but their meanings are so profoundly sensed that the ideology of Lao-tzu, second only to that of the great sage Confucius in Chinese culture, has deeply affected the spirituality of Far Easterners. Whereas Confucianism has influenced the Chinese in communal, public, political, and ethical ways of thinking, the Taoism of Lao-tzu has deeply effected them privately by suggesting the wisdom of shunning every earthly distraction and concentrating on life itself.

Lao-tzu argued that artificially strained effort was vainly unproductive, so one should learn to "do nothing"<sup>22</sup> in order to recognize all the circumstances affected by natural forces. Lao-tzu argued that, as such unseen forces enable the weak to overcome hardship, one "comes to know the advantage of doing nothing,"<sup>23</sup> and "the instructiveness of not speaking and the benefits of non-action are incomparable under Heaven."<sup>24</sup> Both Mies' expression of "almost nothing," which indicates his framing architecture, and Lao-tzu's expression of "doing nothing" have a common philosophical meaning in which one leaves room for something potential. This chapter attempts to suggest a new view of interpreting Mies' building art by discussing the following three issues in each chapter:

first, Mies' building art as a spatial form focusing on his principle "less is more"; second, a philosophical relationship between Mies' expression of "almost nothing" and Lao-tzu's philosophy of voids; and finally, Mies' clear space as a philosophically and creatively accomplished form of his building art beyond economically or organizationally multi-functional space.

## **6.2 Dynamic Space**

In the Barcelona Pavilion of 1928-1929 and the Tugendhat House of 1928-1930, Mies created his dynamic space by introducing freestanding onyx walls into a space. While Chapter 5 discussed the material concept of the freestanding onyx wall itself, this chapter attempts to reveal Mies' spatial intention with material walls. From his assertion that "the building art is in reality always the spatial execution of spiritual decisions,"<sup>25</sup> one can presume that his art of building was revealed through his spatial execution consciously guided by creative principles. One of his spatial principles is "less is more" a representative motto for the creation of sparsely furnished space with few objects and little perceptible architecture. The phrase less is more, which eventually became a common term describing Mies' architecture, may have been coined by Philip Johnson, who wrote the following in *Mies van der Rohe* (1947): "As in architecture, he has always been guided by his personal motto, 'less is more.' The sparseness of his installations focuses attention on each object and makes the arrangement of the objects all-important.

Mies is a master at placing things in space. A minimum of stands, cases and partitions are disposed with studied exactness to achieve maximum individual and total effect.”<sup>26</sup>

Reflecting on Johnson’s statement, one may understand the purpose of the aphorism less is more as achieving a maximum effect from both individual objects and the total environment, including the architecture and the works of art. In this sense, the term less signifies a minimum number of objects situated in an almost imperceptible background of architecture rather than abstractly reduced architecture. Many critics tend to interpret “less” as referring to the simple appearance of Mies’ architecture itself and “more” as implying the greater effect it achieves. For example, William H. Jordy argued that Mies’ “I-beam conjures multiple associations”<sup>27</sup> such as the materiality of steel, the technology of prefabricated parts, the aesthetics of linear reticulation, the tradition of Renaissance theory, and a philosophy of order. Therefore, he concluded that the “emanative potential of the object (contributing to Mies’ “more”) depends on its remaining very intensely the object that it is (his “less”).”<sup>28</sup>

Werner Blaser also searched for the definition of Mies’ less in the naked structure of his buildings from an aesthetic point of view, but he emphasized only outer appearance without the consideration of the entire spatial effect, comprehending the relationship between the objects inside the building and the building itself. Blaser, in his book *Less is More*, argued that as follows: “in his reduction to essentials Mies’s sole aim was to obtain more objective architectural quality but subjectively to discard all trappings not deriving directly from the laws inherent in the combination of a specific material and a fixed structure with an elaborated aesthetic design.”<sup>29</sup> For Blaser, the less of Mies resulted from the process of reduction of such qualities as the essential, the objective, the



inherent, and the decent. He argued that the “realization of the decent was precisely what Mies wanted in architecture when he said ‘less is more.’”<sup>30</sup> Blaser insisted that the less remains through the principle of omission, which achieves the decent on a tangible basis; Mies’ buildings, particularly his latter work in the United States, might in this way appear essentially decent, as the buildings represent essential and well-proportioned structures from the point of exterior view. This notion considers Mies’ buildings complete forms simply reduced to a decent minimum. As Carlo Enrico Rava described, each seemed “precise like a machine, polished like a diamond.”<sup>31</sup> The small but precisely polished



Figure 6.1 Kolbe’s sculpture in the pool of German Pavilion,  
International Exposition, Barcelona, 1928-29

diamond might play a main role in space and decently attract people's attention, but what Blaser, in *Less is More*, missed was Mies' spatial perspective for total harmony.

Instead of emphasizing architecture itself as a form, this study, focusing on the importance of the total harmony between form and ground, attempts to interpret Mies' "less is more" in terms of space: he intended the natural appearance of a whole image in the creation of his dynamic space. If one examines his art of building of the Barcelona Pavilion (Figure 6.1) in terms of "less is more," one gets a spatial view beyond an equivalent relationship between sculpture and architectural space. Peter Carter explained as follows: ". . . Mies van der Rohe, at Barcelona, used the Kolbe figure as a necessary and integral part of his pavilion's space movement character. So perfectly was this sculpture in sympathy with the pavilion's scale and spatial flow, and its location so important as a point of reference, that it comes as somewhat of a surprise to learn that it was as existing work, and not one commissioned especially for the pavilion."<sup>32</sup> Carter emphasized the Kolbe figure as a key point of spatial movement, a persuasive and familiar interpretation of visual space. If one further applies Mies' spatial intention towards the less rather than visually proportioned space, one may realize that by creating the wall itself as a background, Mies did not confuse the part played by the material enclosing wall with that played by the art work. Although the Kolbe figure was an existing work, as Carter pointed out, the figure itself, not the wall, becomes the object or the focus within the environment of the building. While the figure attracts visitors' attention at first glance, the building is designed to serve as its background and restrains its own existential voice in favor of the achievement of total harmony.



Figure 6.2 Interior view from main floor, Frank Lloyd Wright, Midway Gardens, Chicago, 1914



Figure 6.3 Contemplative “Spindle” in the north sunken garden of Frank Lloyd Wright, Midway Gardens, Chicago, 1914

In opposition to Mies' intention of using the wall as a background to a representational form of art work in the Barcelona Pavilion, is Vincent Scully's interpretation of the columnar figures of Frank Lloyd Wright's Midway Gardens of 1914 (Figures 6.2 and 6.3) as "totally adjusted to the architectural shapes of the environment and submissive to them."<sup>33</sup> According to Scully, the entire environment of the Midway Gardens subordinates "all acts except the aura of the architect's own, and there is literally no place for painting or sculpture to operate freely within it."<sup>34</sup> Scully stated that Mies, in contrast to Wright, "eases off the pressure"<sup>35</sup> of a total environment by allowing a classic sculptural figure to autonomously "create the environment by its own act."<sup>36</sup> Mies did this by intentionally diminishing the wall around the Kolbe figure to a simple material background. Although Scully argued that Mies "inherits from Wright"<sup>37</sup> a sense of a total environment, this research proposes that Mies is demonstrably different from Wright in terms of the "less" art of building that he wished to create in a total environment. Such harmony cannot exist if the architecture itself is too assertively plastic—such boastfully art-oriented building types are common in architectural history). Whether a work of architecture is boastful or not is a particularly important issue in the case of a museum. If the building of the museum talks too much about itself, one's attention is drawn away from the objects on display.

Peter Blake contrasts Mies' project for a Museum for a Small City of 1943 (Figure 6.4) with Frank Lloyd Wright's Guggenheim Museum of 1959 (Figure 6.5), noting the degree of architectural exhibitionism of the latter: "For in these the only elements visible [of a Museum for a Small City] at first are the photographic reproductions of important paintings and pieces of sculpture; one must actually search

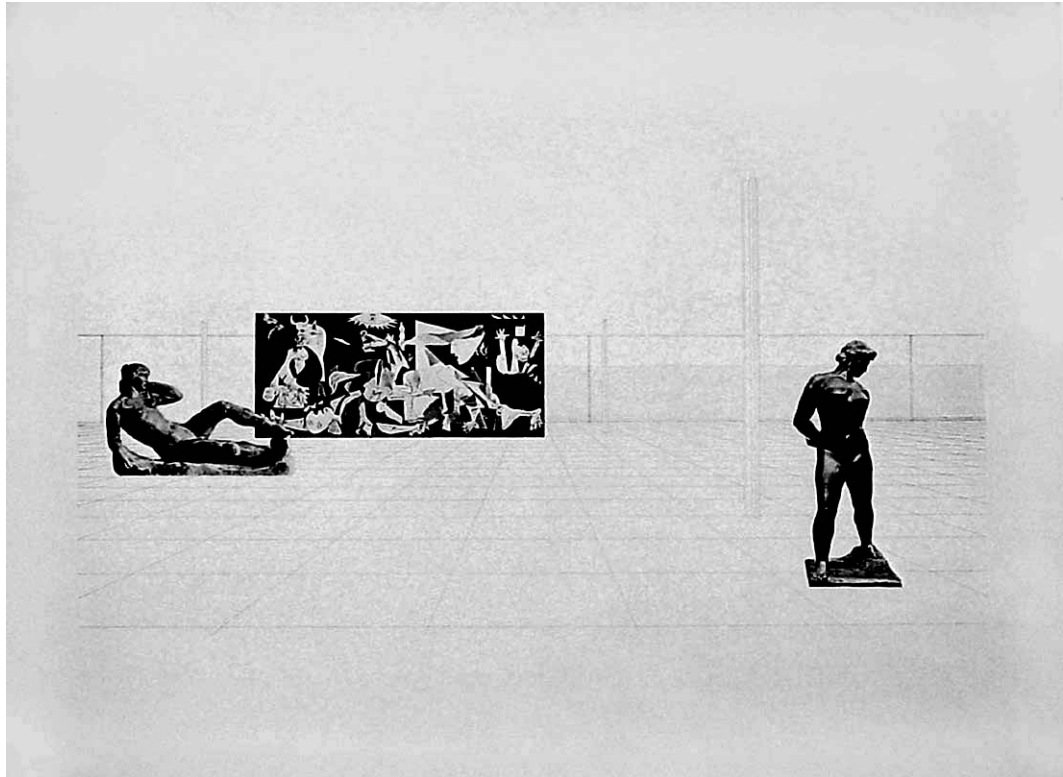


Figure 6.4 Collage of a Museum for a Small City Project, 1943



Figure 6.5 Interior view of Frank Lloyd Wright, Guggenheim Museum, New York, 1956

with a magnifying glass for any evidence of the architecture . . . How different from Wright's Guggenheim Museum, whose powerful, plastic forms overwhelm all but the most self-assertive works of art!"<sup>38</sup> Blake argued that Mies reduced his building to "almost nothing" for the "highest possible degree of freedom"<sup>39</sup> in spatial usage and expression. Expressing architectural elements in only a few fine lines, Mies did not use drawings as a medium, but instead as "photographic reality"<sup>40</sup> that transmits the freshness of artistic works and ensures that their materiality was strongly perceived. In contrast to the self-restrained architecture of Mies, the powerfully illuminating rotunda of Wright's Guggenheim Museum is so grandiose that the works of art are relatively trivialized, and the structural compartments of the museum actually restrict their free arrangement. The most heavily criticized aspect of the museum is the spiral gallery, which assumes a form of overlapping curved ramps that hinder the visitors' appreciation of the works of art because the curved gallery and tilted floor compel visitors to continually move.

The contrast between the museum designs of Wright and Mies reveals how works of art might be allowed to stand out on their own within an architectural framework; one can now freshly interpret Mies' phrase that "less is more" from the concept of Mies' self-restrained art of building. While what becomes less is the invisibly existential voice of an architectural framework, what becomes more is the intangible, total harmony of atmosphere rather than the tangible, dominant power of architectural form: Mies' "less" has power to become "more." In addition to Wright's having realized the concept of the total environment before Mies, the two modern masters approached the creation of a total environment completely differently. Mies pursued a sparse background that drew

conscious attention (as if a person in a vacant space may be seen as more meaningful than a person in a crowded market). In contrast to Wright, who pursued a completely aesthetic form that dominated the entire building environment, Mies created less architecture in order to provide more potential room for higher harmony between artifacts and surrounding space. Although buildings are essentially the central interest of an architect, Mies understood a whole unity in architecture that served a phenomenological harmony in which the material and the spatial are naturally united and that encouraged more contemplative operations of the mind.

Within an understanding of the spatial level of Mies' minimal architecture, one might be inclined to argue against the existing interpretations of Mies' motto "less is more,"—particularly as it relates to criticism of his apparently inhumane demands on those who were to live in his houses. Justus Bier, in "Can one live in the Tugendhat house?" (1931) claimed that "personal life is repressed."<sup>41</sup> More than any of the other critics, Robert Venturi strongly insisted that "the doctrine 'less is more' bemoans complexity and justifies exclusion for expressive purposes," as "Mies' exquisite pavilions . . . ignore the real complexity and contradiction inherent in the domestic program."<sup>42</sup> Venturi ironically repeats "less is a bore,"<sup>43</sup> regarding Mies' houses as the product of "rationalizations for simplification."<sup>44</sup> From Venturi's point of view, the simple generally results from rational reduction, while from Mies' point of view, it is not the result of logical operation but of origin itself—signifying the minimal form of material open to maximum potential in which it becomes either a material ornament or a material background. Mies' houses are intended to provide less occupational space, so they require the residents' temperance in order to maintain their primal state of sparsely

furnished space. The simple has something in common with the less in demanding temperance.

Mies' restraint in maintaining a simple and minimal house lay in architectural philosophy rather than mere picturesque treatment. As an instance of the latter view, Caroline Constant considered the Barcelona Pavilion as a pavilion in a picturesque garden, arguing that "Mies subjected all natural elements in the Pavilion to architectural control"<sup>45</sup> by returning to "a pictorial treatment of nature"<sup>46</sup> that originated from the picturesque tradition of the eighteenth century. For Mies, it was not satisfactory to artificially design nature around a building, so the environment remained natural rather than picturesque. In Far Eastern traditional architecture, the open pavilion type of residence was common because people wished not only to appreciate beautiful scenery in a silent place but also to live free from worldly cares and refresh themselves, to cleanse themselves to allow room for the development of new potential that Ih Tiao Chang referred to as "creative forgetfulness."<sup>47</sup> According to Chang, forgetting was considered a "constructive action" in creative work because creative power more likely derived from subconscious mentality than from existing knowledge. Although the latter is profitable at the moment, the rigid formation of knowledge tends to restrict free thinking. As these pavilion houses lower their existential voice and silence the scenery beyond them, this atmosphere enables residents to become calm, contemplative thinkers and sense life in imaginative ways beyond ordinary and functional confinement.

Grete Tugendhat described a similar phenomenon in the work of Mies, "Just as in this space one sees each flower as never before, and every work of art (for instance the sculpture that stands before the onyx wall) speaks more strongly, so too the human



occupant stands out, for himself and others, more distinctly from his environment.”<sup>48</sup> Tugendhat, understanding the requirement of temperance for houses that valued contemplative space, experienced the enhancement<sup>49</sup> of the consciousness of life itself. Therefore, Mies’ houses must not be regarded merely as pavilions in aesthetically picturesque gardens but as reflections of a more profound level of life. Mies emphasized the importance of life as a conscious aim of his art of building in *Die Form* of 1927:

Life is what matters in its entire fullness, in its spiritual and concrete interconnection.<sup>50</sup>

Mies regarded spiritual as heightened consciousness of creativity that enabled him to newly create his art of building in terms of space. In order to creatively provide a new style of dwelling based on innovative constructional industry, Mies created his own temperate space that requires both the temperance of the residents of Mies’ houses and the temperance of Mies himself in designing his “less” space. Mies’ dynamic space is characterized by dynamic forces between material freestanding walls and full glazed walls open to nature. Mies’ material freestanding walls are intended to be less in their form and finish to leave room for an extroverted view of the outside nature. One may understand the different level of spatial attraction of the walls by comparing the fireplace wall of Louis Kahn’s Fisher House (Figure 6.6) with the sleek onyx wall of Mies’ Tugendhat House (Figure 6.7). Although both play the same spatial role,<sup>51</sup> in which an open room is zoned into two different functions by a freestanding wall, Kahn emphasized the fireplace wall as an introverted focus in the house by creating unexpectedly large and massive crags while Mies obscured the presence of the stony wall by the reflectively



Figure 6.6 View of the hearth providing the separation between living and dining areas, Louis I. Kahn, Fisher House, Hatboro, Pennsylvania, 1960-67



Figure 6.7 View of a single onyx wall between study and living areas of the Tugendhat House, Brno, Czechoslovakia, 1928-30

polished surface. Thus, Mies' wall is not perceived as made of a massive stone but of weightless material that reflects outside light, as if it were a guider leading to the vision of the open expanse of nature beyond full, high glazed walls. In Kahn's house, a built-in chair is combined into the frame of a window, so the exterior glazed walls, divided into several pieces, cannot provide the full vision of the nature outside. Moreover, those who sit on the chair naturally face the massive wall rather than the nature outside. In contrast to Kahn, Mies designed unadorned glazed walls and located individual chairs in the middle of space so that residents sitting beside the freestanding onyx wall naturally face the nature outside.

In Mies' dynamic space, material freestanding walls serve as both material ornaments and a background for artwork in the inner space: the walls become a material

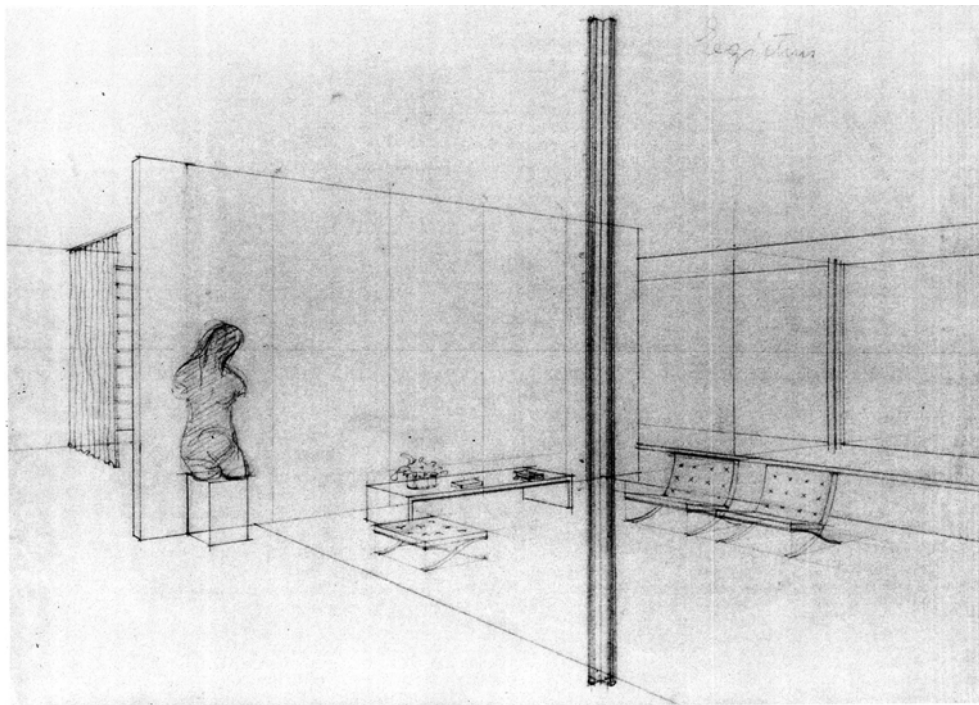


Figure 6.8 Interior perspective of the living room of the Tugendhat House, Brno, Czechoslovakia, 1928-30

ornament and formless background at the same time. In addition to creating a freestanding wall that became the background of the Kolbe figure in the Barcelona Pavilion, Mies also sketched an anthropomorphic sculpture against the background of a freestanding onyx wall (Figure 6.8) from the beginning design<sup>52</sup> of the Tugendhat House. Mies, apparently intending that his material freestanding walls serve as the background of artwork in his two successful dynamic spaces, gave up the creation of the relationship of form and ground between the statues and the freestanding walls in his clear space. As one sees in his later buildings, he created clear space more minimal, simple, and open to the outside, avoiding focal attention of relationship between walls and works of art and designing his buildings to allow an outside view itself to become the background of some works of arts. Therefore, extroverted clear space itself came to be impressive as potential space revealing changing and living properties.

Randall Ott wrote that “once Mies had abandoned the use of statues, his spaces no longer easily offered the sensual pole to a lone visitor.”<sup>53</sup> In contrast to Ott, Mies did not need to use statues in his clear space to provide sensuality and to release observers from loneliness; Mies may have recognized the potential of nature as a “changing background”<sup>54</sup> surpassing the aesthetic pleasure of sensual statues. After 1930, when Mies met Karlfried Graf Dürckheim, he may have become more deeply acquainted with Lao-tzu’s philosophy and come to firmly believe in the art of framing construction and a higher unity between framing architecture and framed nature beyond a simply extroverted space. While Mies’ spatial principle “less is more” is applied to a relationship between restrained stereotomic walls and an artistic status in his dynamic space, the principle is applied to a relationship between temperate frames and the potential nature

through the frames in his clear space. Mies realized his art of framing construction, or Miesian tectonics, by containing clear space in which he found the ideal meaning of his art of building as “a defining rather than a confining space”<sup>55</sup> as he described. (Mies’ terms, defining and confining, were discussed in Chapter 6.1).

### **6.3 Lao-tzu’s Voids and Mies’ “Almost Nothing”**

At some point, Mies began to describe his framing architecture as almost nothing. As stated in the introduction, Mies’ almost nothing reminds Far Eastern architects of Lao-tzu’s “doing nothing.” This chapter attempts to interpret his term almost nothing by showing how Mies’ works and statements coincided with Lao-tzu’s concept of voids. Werner Blaser was the first to show a relationship between Mies’ architecture and Far Eastern philosophy and architecture. In his book *West Meets East- Mies van der Rohe*, he provided illustrations of Mies’ modern works side by side with those of ancient buildings of the Far East. The motivation for this comparison was his instinctive sensibility to their similarities rather than his substantial thinking about space. In his book, Blaser did not establish a concrete spatial connection between Mies’ architecture and Far Eastern buildings, saying that “The title ‘West meets East’ can be justified with the view that the ideas of East and West meet, as if at the center of a cross, in the thoughts and buildings of Mies van der Rohe, and that, independently, an extraordinary similarity ensues.”<sup>56</sup> Although Blaser was the first to discern the relationship between Mies’ architecture and several Eastern philosophies and ancient buildings such as those of the Chinese and the Japanese, he broadly described Eastern philosophies in the first part of his book while

displaying Mies' buildings alongside Eastern ancient buildings in the last. He simply arranged the illustrations to highlight similarities, but he did not offer reliable evidence<sup>57</sup> of a link between the Far Eastern philosophy and buildings and Mies' buildings.

Although Blaser was aware of Mies' interest in Lao-tzu's philosophy, he did not distinguish Mies' appreciation of this ancient Chinese concept of voids, among other concepts of "reduction to essentials."<sup>58</sup> In analyzing Mies' concept of the less, Blaser described Mies as a man of architectural "insight into inner cohesion" that merged "traditional occidental thinking and Far Eastern wisdom aimed at the essential."<sup>59</sup> To avoid any ambiguous notion that Mies employed several Eastern philosophies, this thesis examines Lao-tzu's philosophy through concrete phrases from his work, excluding common mystical interpretations that originate from the tendency of Eastern traditional philosophy to be more intuitive and less systematic than Western philosophy. (One can hardly know the original meaning of *Tao Teh King*, the Book of Lao-tzu, which is believed to have had at least eighty-three different editions in Chinese. Moreover, English translations cannot accurately interpret the original meaning of the Chinese verses, so Westerners seldom have access to a clear understanding of the unfixed, intangible, nameless, and reversible Tao, that is, the essence of Lao-tzu's philosophy.)

Mies may have understood the notion of voids in terms of architectural space, because he possessed not only Lao-tzu's *Tao Teh King* but also Amos Ih Tiao Chang's architectural theory book, which interpreted Lao-tzu's concept of space from an architectural point of view. Mies' English edition of Lao-tzu's *Tao Teh King* used the term "hollow space"<sup>60</sup> instead of voids, but original Chinese texts preserved words that correspond to the meaning of the "void."<sup>61</sup> In contrast to the equivocal interpretation of

*Tao Teh King*, Chang, under the title of *Intangible Content in Architectonic Form*, clearly contrasted the concept of the void with the solid, emphasizing such characteristics as spiritual life, real infinity, and the inter-penetrable potentiality of the void<sup>62</sup> in terms of architectural space and form. Chang's book is not thick or difficult, so any architect could have understood and used its content to interpret Lao-tzu's philosophy in terms of architectural space. In order to appreciate the Chinese meaning of the term void, one had to recognize the idea of "allowance for growing," which was discussed as part of Chang's interpretation of the Book of Lao-tzu in the following concept:

Without allowance for filling, a valley will run dry;

Without allowance for growing, creation will stop functioning.<sup>63</sup>

Chang explained Lao-tzu's notion of life as the relationship between allowance and function: As growth is considered the basic function of every living thing, things that are completely perfect and cannot grow further are treated as "dead."<sup>64</sup> Although everything organic grows until it arrives at its fullness, Lao-tzu believed that the non-living also had a lifecycle in which it grew, changed, and died. While changes during growth are generally visible, he believed that whether or not the growing force came from an organic or non-organic source, one could not perceive the force itself. Emphasizing the intangible rather than the tangible, Lao-tzu believed that the invisible force was more important than the object itself. Thus, the space remaining for growth, that is, the void, became the standard by which Lao-tzu evaluated existence rather than present existence. Dohol Kim remarked that one of the tenets of Far Eastern ideology was that a being reveals itself through its function, so one regards a being as having autonomous existence only while it retains its usefulness. Things have names to match

their functions. Nevertheless, if one being takes on the function of everything, what does it become? Lao-tzu searched for such an omni-functional being, which he called the void. To illustrate this concept, take the function of a cup, which is to contain something liquid. If the cup is full, and it cannot hold any more, then the cup is no longer considered a cup, in Lao-tzu's point of view, as the loss of function means the loss of being. This logic is often referred to as "Laoistic ontology"<sup>65</sup> of the void.

The reason why the void was so important in the theory of Lao-tzu is that he considered the void as providing an allowance for growing, that is, a potentiality for being. Potentiality implies the capability for growth in either a living or non-living entity such as architectural space. This dissertation, in terms of architectural space, defines Lao-tzu's voids as potential emptiness. If one applies Lao-tzu's idea of voids to Mies' idea of space, a space that is not designed to be fully occupied would have potential to accept further additions, and it would be flexible. Thus, this architectural space would make a

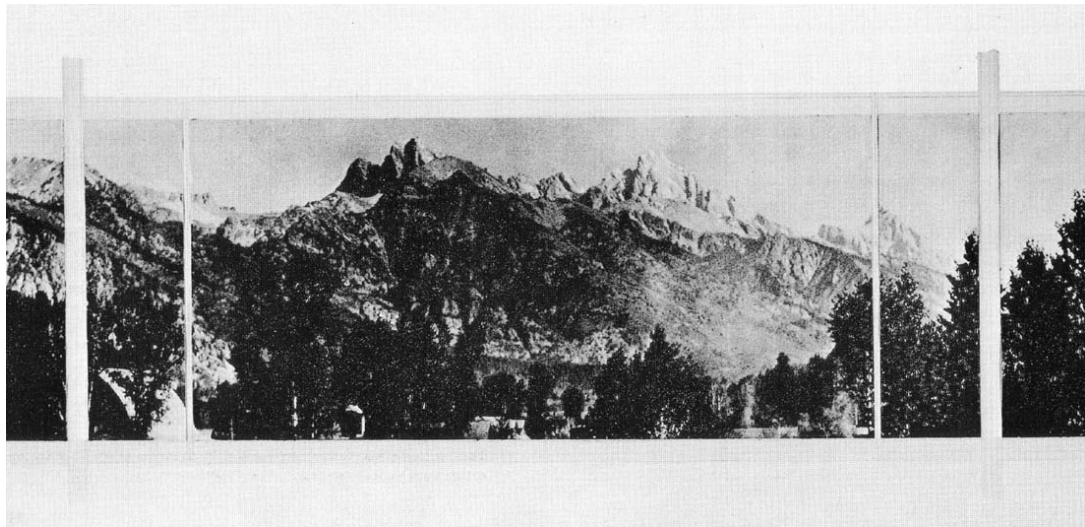


Figure 6.9 View of landscape from the living room of the Resor House Project, Wyoming, 1937-38



much stronger impression than one in which the architectural intention of its space had already been determined. For example, in the drawing and montage of the Resor House project of 1938 (Figures 5.2 and 6.9), Mies presented the living room of the house as a vacant frame containing something potential, so the main point of these presentations was not the building itself but rather the natural vista beyond the frame of the building, or the Klee painting in the interior. In these presentations, Mies showed that the void space of the house would be filled with something potential that an observer could contemplate.

While the Resor House remains a project that simply suggests the concept of the void, the Farnsworth House of 1945-50 provides an authentic experience of the void. Although Mies did not use the term void but called his architecture “almost nothing,” the two terms have something in common, as shown in the case of the Farnsworth House. By attempting to create the architecture of almost nothing, or a barely visible exterior wall of the building, Mies intended to show that his architectural concern was beyond physical construction. The enclosing wall became visually empty and fully exposed to the changing nature outside, so Mies intended almost nothing artificial in the command of view by transforming the exterior walls into the void.

According to Stanley Abercrombie, Mies said that he “wanted to realize his ideal of building *beinahe nichts*--almost nothing”<sup>66</sup>—through the Farnsworth house. Abercrombie argued “almost nothing is really something,” in that he considered Mies “most purely architectural” because he had invented “the clearest and simplest statement of what architecture can be” with “technology, precision, and flexibility”<sup>67</sup>—the language of the day. Although Abercrombie tried to find Mies’ greatness in the issue of almost nothing, his theory seems to remain within the boundary of tangible construction,

including technology and detailed techniques without considering something beyond them. In contrast to Abercrombie's view of architectural technology, Mies' view focused on architects' spiritual side or heightened consciousness of creativity that enables architects to assert themselves through architectural creation in newly given environment based on new technology:

Whenever technology reaches its real fulfillment,  
it transcends into architecture.

It is true that architecture depends on facts,  
but its real field of activity is in the realm  
of the significance. . . .

Architecture is the real battleground of the spirit.<sup>68</sup>

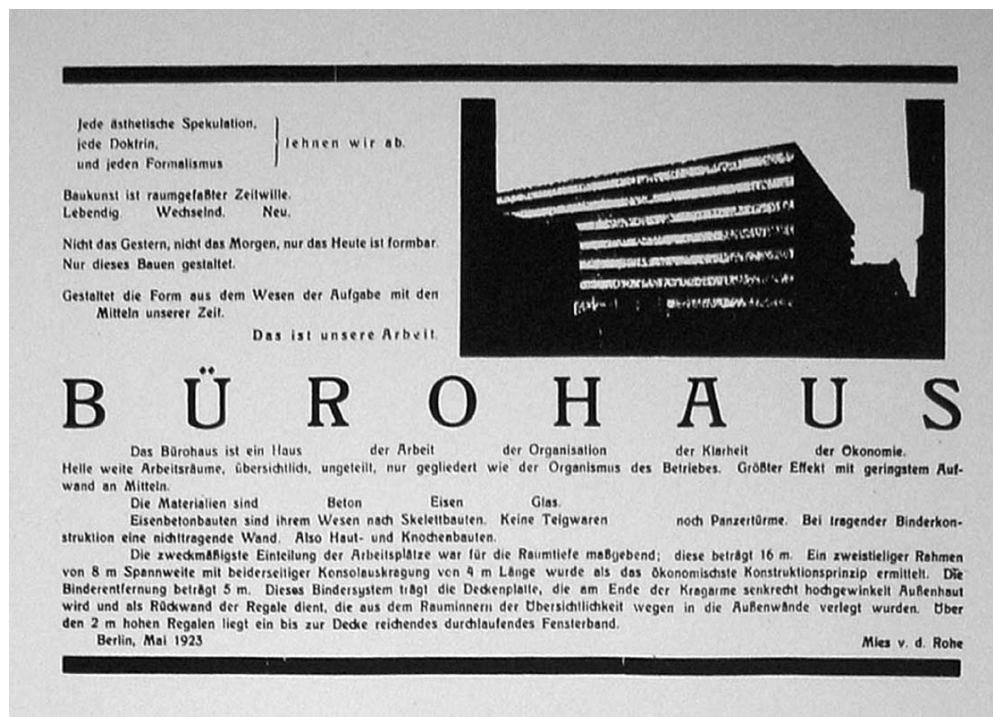


Figure 6.10 Concrete Office Building, Published in *G*, 1923

Introducing a part of Mies' above text, an anonymous editor of *Perspecta* (1955) explained that "yet the achievement of pure technology still challenges architects to meet the spiritual needs of men in an equally convincing way."<sup>69</sup> Mies' text underscored his concerns about the problem of technology relative to conscious struggles for creative architecture beyond material requirements and technical precision.

Besides the content and meaning of the text, its poetic form may be regarded as natural by those who are accustomed to the style of his writing (Figure 6.10). A statement about this figure translated from German into English follows:

Any aesthetic speculation,  
any doctrine, } w e r e j e c t .  
and any formalism

Building art is the spatially apprehended will of the epoch.  
 Alive.                      Changing.                      New.

Not the yesterday, not the tomorrow, only the today is formable.  
Only this building creates.

Create form out of the nature of the task with the means of our time.

That is our work.<sup>70</sup>

Mies is known for his aphoristic style of writing, but few people might notice that Mies intentionally made use of a “nuanced” void in his written statement. In poetry, the nuanced void itself has been recognized as having creative forces beyond the meanings of the words, as reflected in the poetry of Stéphane Mallarmé: “He [Stéphane Mallarmé] recognized the creative force of negativity in the blank spaces, using them as visual pause

to establish a rhythmic movement of ideas and images. Blank ‘even out and scatter,’ making possible a simultaneous vision of the entire page, which was laid out like a musical score.”<sup>71</sup> Those who recognize the “creative force of negativity in the blank spaces” in Mallarmé’s work may also find that Mies intentionally utilized the nuanced effect of empty space in his texts. Mies’ text above appears to have more firmness and truth because he assumed a poetic style that used intentional articulation.

Besides publishing his statement in a poetic style, Mies referred to relationship between prose and verse within architecture:

Architecture is a language having the discipline of a grammar. Language can be used for normal day-to-day purposes as prose. And if you are very good at that you may speak a wonderful prose. And if you are really good you can be a poet.<sup>72</sup>

In this account, Mies explained two stages of good architecture: very good prose and really good poetry. One can interpret this comparison as follows: In order to go beyond the stage of prosaic architecture and reach that of poetic architecture, a building should be designed on a structure different from the prosaic structure. Mies thought of the ideal of his art of building as a consciously spatial form as Chapter 6.1 discussed Mies phrase “the building art is in reality always the spatial execution of spiritual decisions.”<sup>73</sup> His poetic level of buildings signifies the art level of spatial forms beyond material construction. Mies, seeming to conceive a clear space enclosed with all glazed exterior walls as his own poetic style of architecture, established on a spatial structure totally distinguished from existing space protected by solid walls. For Mies, buildings composed of solid exterior walls seemed to fall within the boundary of prosaic architecture; for example, Mies did not allow the publication of the Lange and Esters Houses of 1927-

1930 (Figure 3.4 and Table 3.2) even though they are well designed, perhaps because he did not regard them as poetic architecture through which he could realize a mastery of his art of building. After 1930, he progressively transformed the exterior wall of his buildings from stereotomic walls to tectonic frames, which conformed to his notion of the “really good poetry” of architecture.

In his major buildings that contain clear space, such as the Farnsworth House and the Architects’ Building, so-called Crown Hall, Mies seemed to somewhat repress functional space for daily living and exploited the higher revelation of clear space. For example, the four-sided exterior wall of both buildings was transformed into full fenestration. According to Dr. Farnsworth, the original owner of the Farnsworth House, “I can’t put a clothes hanger in my house without considering how it affects everything from the outside”<sup>74</sup>; K. Michael Hays, discussing the double structure of Crown Hall composed of “Mies’s universal space of the pavilion above and programmed space in the basement below,” argued that Mies’ aphorisms such as “almost nothing” and “less is more” suggest “a different way in which architectural space can coordinate its environment, causing the latter to order itself around the project and yield up its ideological form, to which its counterform can only then be proposed.”<sup>75</sup> Since a transparent glazed wall is not useful for propping something up against or concealing commodities in interior space, the purpose of the void is not to meet functional requirements. In response to negative comments about his open-plan houses enclosed with full high glazed walls, such as “not convenient,” “draughty,” and “no private,” Mies answered as follows:

Yes? I would not like to live in a cubical house with a lot of small rooms. I would rather live on a bench in Hyde Park.<sup>76</sup>

Thus, Mies confidently chose to design poetic clear space that extended to nature over traditional design practical to daily living although people did not satisfactorily accept Mies' clear space. If one fills wall-bounded space with functional commodities, the situation may be compared to a daily prose like writings of newspaper. In contrast, if a dancer dances in transparent empty space, the atmosphere can be likened to a poem. Although the writings of newspaper are wonderfully written, they are still prose.

In Mies' view, filling wall-bounded space with functional commodities was analogous to filling a newspaper with daily prose. In order to reach a poetic level of the art of building, Mies attempted to develop a new structure of space by abandoning wall-bounded space and by creating his own type of clear space. In other words, a poetic building as the ideal of his art of building was to a new order what a prosaic building was to a practical order. This analogy is reflected in Mies' comments on Crown Hall of 1950-1956 (Figure 6.11):

I think the Architects' Building is the most complete and the most refined building and the most simple building. In the other buildings there is more a practical order on a more economical level and in the Architects' Building it is a more spiritual order.<sup>77</sup>

For Mies, the term spiritual signified a heightened consciousness of creativity through which architects try to provide new spatial experience (discussed in Chapter 6.1). Thus, he considered the Architects' Building (Crown Hall) as based on a conscious order characterized as complete, refined, and simple because the main floor of the Architects'



Figure 6.11 Front view of Crown Hall,  
Illinois Institute of Technology, Chicago, 1950-56

Building is as pure a clear space as possible. In order to creatively realize the clear span of this building, Mies conceived an innovative structural system composed of “esoskeletal plate girders,”<sup>78</sup> which signified the structure of the exterior plate girders. The term esoskeletal originates from esoskeleton, implying the hard outer shell of an insect that provides structural support for an organism. By hanging a 120-by-220-foot roof plate under the esoskeletal plate girders, Mies was able to realize a unitary volume of clear span, which is a pure clear space enclosed with full glazing that brings outer nature into inner space.

Mies, recognizing the changing potential of nature outside the architectural frames, explained that he had painted black [charcoal gray] as the color of the frames of urban glass buildings against the sky background. Although one can hardly command a

natural view in the city, Mies knew that one could see the sky as representing nature, saying in an interview for the BBC program of 1959 as follows:

Even in our tall glass buildings, when you are in an apartment, you see the sky, and even the city, changing every hour.<sup>79</sup>

In Crown Hall, Mies further developed the idea of the relationship between framing architecture and framed nature in that he not only painted the frame with charcoal gray, a neutral color that brings out the saturation of the sky, but also glazed exterior walls with two kinds of glass, glazing the large upper panes with transparent glass and the lower panes with translucent glass. One can see the sky and the upper part of trees from inside the building through transparent glass while one can experience calm space owing to translucent glass that obscures the urban busy activity of the outside. To extend this calm and clear space to the changing sky outside, Mies innovatively ordered both the structure and the details of Crown Hall. Intending to create poetic space, he understood the nuanced void of architecture, which architects can achieve by understanding material requirements and reducing functional elements to a relatively unnoticeable minimum, that is, by making the functional part of architectural frames look like almost nothing for an extroverted view. Accordingly, after having recognized the existence of the void through glazed walls, Mies was able to consciously create a new order constituting his poetic building.

Mies achieved this creative order after having mastered all the actual problems of construction and controlled architectural methods down to the smallest details, so his conscious details enabled his poetic buildings to appear quiet.<sup>80</sup> From this point of view, “almost nothing is too much”<sup>81</sup> seems to make sense, as Reyner Banham argued.



According to Banham, Mies was not a machine-age messiah, but “an architect to the marrow” and a “craftsman of technology.”<sup>82</sup> As an illustration, the structure of the Farnsworth House, like that of Crown Hall, seems merely simple and technological at first glance, but Stanley Abercrombie, (like Banham,) was sure that Mies would have preferred “less visible technology”<sup>83</sup> and a more quiet and minimal building achieved through thorough craftsmanship. Abercrombie described Mies’ attachment to the details of craftsmanship that would cause a building to appear minimal: “The unusual design and unusual attention to details led to an unusually long construction process. The steel frame was sand-blasted before painting for maximum smoothness . . . with joints of minimum width. . . . , the once warm client/architect relationship is cooled; Mies was never fully paid.”<sup>84</sup> As the detailed construction process of the Farnsworth House shows, the simple and quiet appearance does not result merely from formal reduction but rather from craftsmanship of consistently high quality and the persistent mastery of problems, both of which render the house as something consciously poetic, or almost nothing ordinary.

It is highly significant that on the one hand, Mies publicly called his architecture almost nothing and on the other hand, expressed his rejection of formalism, arguing that:

I hope you will understand that architecture has nothing to do with the invention of forms. It is not a playground for children, young or old. Architecture is the real battleground of the spirit.<sup>85</sup>

Mies asserted that architects should work on the battleground of the spirit, far from the playground of form. In order to discourage formal ways of architecture and encourage a more creative approach defining his own art of building, Mies tried to eliminate formal design to almost nothing. For deeper understanding of the relationship between the

invisible void and Mies' conscious approach to almost nothing architecture, Lao-tzu' concept of non-being, Tao is introduced: "Things are the manifestation of being. Being comes from non-being [Tao]."<sup>86</sup> Lao-tzu stressed the importance of intangible quality over tangible one in things. Although the intangible is non-being, it is not nothingness. As one cannot generally distinguish the difference between nothingness and almost nothing or between spatial nothingness and nuanced voids, the meaning of Tao, the most intangible, is illustrated through the example of Eastern calligraphy. The expression of an invisible but creative force is natural in Eastern calligraphy (Figure 6.12), in which the

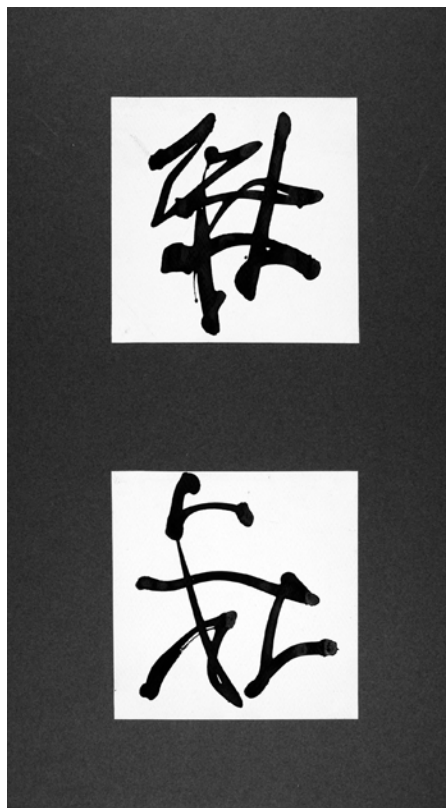


Figure 6.12 Two calligraphic ideograms that Mies possessed in his personal library, Mies van der Rohe Collection (Mies print no.9)

role of the void is considered as crucial as the style of penmanship and the meaning of the writing itself. In Eastern calligraphy, scripted in Chinese black ink on white paper, one cannot erase or correct; accordingly, one has to write the words in one stroke. To achieve calligraphic excellence, one must persevere until one recognizes its “Tao,” that is, its essence. The resulting quality of the brush writing may come from the integration of spontaneous and conscious forces: the spontaneous force is revealed through the void, and the conscious force is represented by an elaborate technique and the meaning of the writing. That is why calligraphy is not evaluated merely as a technique or as an aesthetic product but as a highly integrated exercise in which the calligraphy itself not only represents the writer’s mastery of it but also encourages readers to appreciate the integration between solid writings and void space.

In Mies’ art of building, one can find the existence of the void between frames as he revealed the void by bringing out the changing nature. In his clear space, one feels the voids seen through full glazed walls silent and contemplative, owing to Mies’ innovative structure and details that produce its minimal, almost nothing appearance; however, nature, the content of the voids, changes at every moment in every season. The voids do not signify simple nothingness but affect the countenance of the architectural silence. Branden W. Joseph introduced the definition of the silence of John Cage as “the presence of ambient and unintentional noise rather than the complete absence of sound.”<sup>87</sup> Cage, associating this concept of silence with Mies’ glass houses, stated in a lecture in 1957 that “. . . opening the doors of the music to the sounds that happen to be in the environment. This openness exists in the fields of modern sculpture and architecture. The glass houses of Mies van der Rohe reflect their environment, presenting to the eye images of clouds,

trees, or grass, according to the situation.”<sup>88</sup> As one understands Cage’s interpretation of the concept of silence, the environmental image seen through an architectural frame is different from the environment itself in that, while the environment is material, the void seen through the confinable frame becomes a factor that permits people to free themselves from daily concerns and leads to metaphysical thought. Mies claimed as follows:

I was in the house from morning to evening. I did not know how colourful nature really was. But you have to be careful in the inside to use neutral colours, because you have the colours outside. These always change and I would say it is beautiful.<sup>89</sup>

Appreciating the unimaginable vicissitudes of the void, Mies created not only a “neutral frame”<sup>90</sup> but also used neutral tones, such as white and charcoal gray, which reminds one of Lao-tzu’s phrase saying that “way to acquire positive is to contain negative.”<sup>91</sup> Mies accomplished poetic clear space by creating the neutral appearance of the almost nothing framing architecture that brought out the potential voids.

## 6.4 Clear Space

Mies attempted to realize a new concept of modern space, described by Kenneth Frampton as “an unobstructed clear-span, single-story, unitary volume,” or a space “enclosed by a plate-glass skin, the apotheosis of Mies’s phrase, *beinahe nichts*, ‘almost nothing.’”<sup>92</sup> Mies called that space clear space. The idea that the creation of clear space—generally speaking, Mies’ universal space—was an undesirable goal may be

attributed to Henry Russell Hitchcock and Philip Johnson, who, in 1932, systematized the formal principles of the modern architectural trends of that time in Europe, codifying them under the umbrella term International Style in contrast to historical styles. According to these principles, the clear space of Mies and the space of the international style seem to be similar. Hitchcock and Johnson, who proposed three characteristics of the international style, related one of the principles to space: "Space enclosed by thin planes or surfaces as opposed to the suggestion of mass and solidity,"<sup>93</sup> that is, bounded by enclosures made up of jointed framing elements with a screen-like covering or infilling.<sup>94</sup> These types of modern buildings believed to have included Mies' framing systems that bound his clear space. Colin Rowe, calling Mies' clear space "International Style space,"<sup>95</sup> criticized the clear space of Crown Hall (Figure 6.13) from the classical point of view: "Crown Hall is provided with no effective central area within which the observer can stand and comprehend the whole. . . . for this reason, in spite of the centralizing activity of the entrance vestibule, the space still remains, though in very much simplified form, the rotary, peripheric organization of twenties, rather than the predominantly centralized composition of the true Palladian of classical plan."<sup>96</sup>

Strangely enough, Rowe evaluated Mies' clear space in terms of the "true Palladian classical plan." He explained the motivation of the comparison, suggesting several similarities of the two plans: a symmetrical and a mathematically regulated volume and a centralized entrance vestibule. Rowe, emphasizing the spatial climax through the hierarchically centralized organization in the Palladian plan, evaluated Mies' clear space as inferior in spatial effectiveness. This way of thinking appears to represent biased classical thinking in that his architectural point of view is introverted and searches

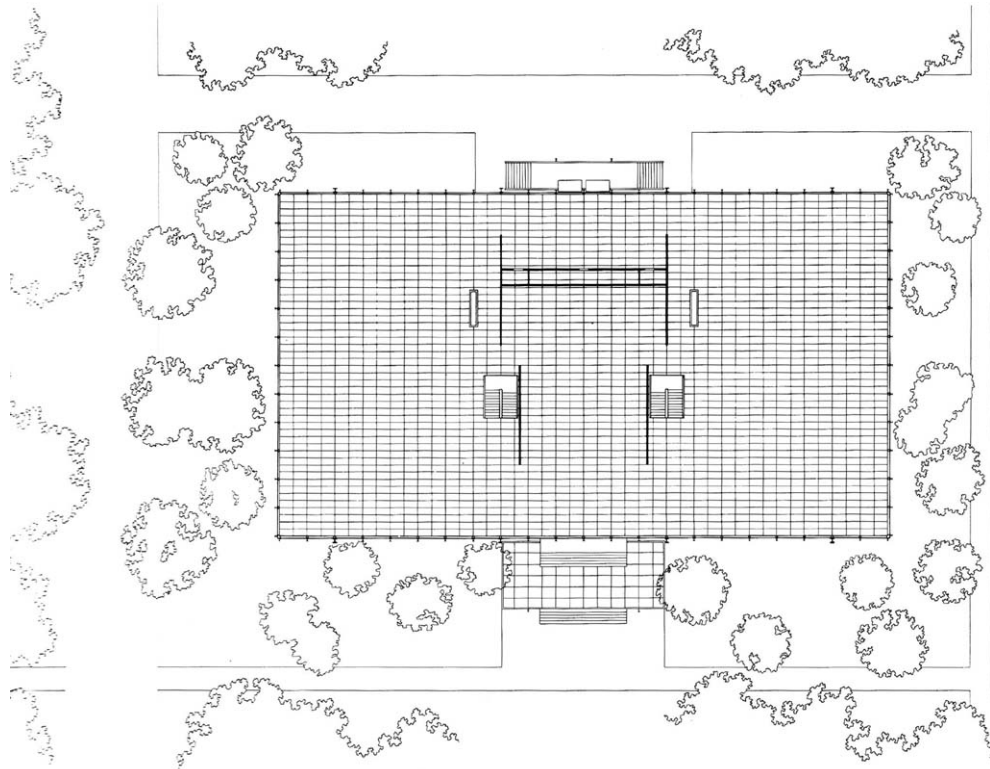


Figure 6.13 Plan of main level of Crown Hall, Illinois Institute of Technology, Chicago, 1950-56



Figure 6.14 View of the terrace of the New National Gallery, Berlin, 1962-68

for an ideal climax inside, disregarding the potential importance of nature and the urban context outside (Figure 6.14) to an interior viewer.

In terms of extroverted space, Wolf Tegethoff argued that the Prairie Houses of Frank Lloyd Wright on the project had no influence on the Brick Country House of Mies in 1923, stating that “the difference is essentially one of orientation. Wright’s Prairie Houses pay tribute to their natural setting, and they do so handsomely; their interiors, however, are always protective and introverted, fixed on the fireplace. Mies’s spaces, by contrast, are extroverted, clearly oriented toward a garden or, wherever feasible, to the open nature beyond, seeking to catch as much of a view as possible.”<sup>97</sup> This argument suggests a new way of thinking in contrast to generally form-oriented opinions on the Brick Country House of Mies, including that of William J. R. Curtis, who remarked that “the Brick Villa combined a generalized ‘unhistorical’ classicism in its proportions and profile with the pinwheel qualities of Wright’s pre-war house plans, and with a pattern of rhythmic lines and intervals inspired by the paintings of Mondrian, Van Doesburg, or perhaps Lissitzky.”<sup>98</sup> Similar to form-oriented thinking but with a concrete example of buildings, Neil Levine insisted that “the sources of Mies’ composition of interpenetrating planes [of the Barcelona Pavilion of 1929] could be traced back to Wright’s Robie House (1908-9) . . .”<sup>99</sup>

While the general opinion of the influence of Wright on Mies was based on the downward view from the sky, as if one might deal with architecture as a small model, the viewpoint of Tegethoff, who considered orientation, began inside the real space, which is divided into two types: introverted space, protectively focused on the fireplace, and extroverted space, freely focused on the open nature beyond. In this sense, the general



Figure 6.15 View of the main living area toward a hearth that provides the separation between living and dining areas, Frank Lloyd Wright, Frederick C. Robie House, Chicago, 1908



Figure 6.16 View of the dining area near windows, Frank Lloyd Wright, Frederick C. Robie House, Chicago, 1908



concept of Wright's Prairie Houses, which are usually expressed as "extroverted, opening outwards with views in all directions and anchored by the heavy solid hearths at their centres"<sup>100</sup> seems inconsistent with Tegethoff's logic, as if there were two gods, hearth and nature, in a house. Although Wright's Prairie Houses comprise the components of hearth and nature at the same time (Figure 6.15), the hearth is situated at the spatial and symbolic center of the houses, so the space is more introverted rather than extroverted. While the introverted orientation is based on spatial thinking (although critics have generally considered Prairie Houses extroverted), the extroverted interpretation is based on a formal analysis in which the exterior form of the house appears extroverted.

Evidence shows the contrast between Wright's introverted space and Mies' extroverted space. For instance, with regard to window design, Wright, in his Robie House (Figure 6.16), used not only the same pattern in the glass in all the windows and doors of the living room but also the same three-dimensional motifs in the furniture so that the interior retained a sense of enclosure and reads as an integrated whole.<sup>101</sup> Moreover, the dining table set of the Robie House was designed to sit with nature as the backdrop like his built-in chairs combined into the frame of a window in other projects. In contrast to Wright, whose house is an introverted whole with a dominantly uniform design, Mies left his glass plate unadorned in all his buildings, which provides an open view and a feeling of an extroverted whole uniting the building with nature and the context outside.

While glass design as a factor that renders a house introverted is not widely used in architecture, the fireplace, or the hearth, which, according to Gottfried Semper, was

among the four basic elements of the primordial dwelling, is a consistently significant element in Western domestic architecture:

Throughout all phases of society the hearth formed that sacred focus around which the whole took order and shape. It is the first and most important, the moral element of architecture. Around it were grouped the three other elements: the roof [the framework], the enclosure and the mound [the earthwork], the protecting negations or defenders of the hearth's flame against the three hostile elements of nature.<sup>102</sup>

Since its appearance in the myth of Prometheus, the hearth has been a symbolic center as well as a physical provider of warmth in Western architecture. The hearth, or fireplace, became the main focal point in the house design of not only Wright but also Louis Kahn, who wrote "The fireplace plays a strong part in my houses. I feel it represents the presence of a man and therefore is of home."<sup>103</sup> One can understand the spatial attraction of the fireplaces of Louis Kahn's houses. Mies seems exceptional in the history of Western architecture in that his buildings contrast with solid, introverted types of buildings that seem predominant in not only classical but also modern architecture. Jeffrey Kiffer stressed this tectonically extroverted glass skin of Mies as almost nothing, distinguishing the characteristics of Kahn's architecture from those of Mies' in terms of the classical context, saying that "Kahn's incrementalism and emphasis on the solid wall differentiates his work from that of Mies van der Rohe, whose architecture of 'almost nothing' is minimalism of skeletal structure and membranous glass walls. . . . Kahn re-established the connection to the ancient classical rhythms and repetitions of architecture but instead of Mies's 'almost nothing' he proceeds in the opposite direction . . ."<sup>104</sup>

Kiffer expressed this self-effacing tendency of Mies as exceptional in Western architecture, in which the massively and solidly, or, stereotomically<sup>105</sup> introverted inclination seems predominant. Together, the hearth and the solid exterior wall imply that the building has become a place protected from hostile nature; in other words, nature still has to be overcome rather than assimilated. This view, achieved by making a building stereotomically introverted, persisted even in modern architecture. How then did Mies dare to make his architecture tectonically extroverted?

If one views Mies' approach from the point of view of Lao-tzu, a building exists as a part of nature, and nature itself rather than the artificial fireplace becomes the inevitable focal point of the building. The Chinese term 自然 in the Book of Lao-tzu corresponds to two meanings in English: one is nature itself as a noun, and the other implies "spontaneously" (自), "following its own way," or "becoming its own self" (然) as a gerund. Thus, it is natural that a building should be open to nature because it is not distinguished from nature but becomes a part of the cosmos, where everything is continually ordered in a harmonious whole. To understand the characteristics of Lao-tzu's concept of nature, one must first learn the meaning of the Tao,<sup>106</sup> which Lao-tzu described as the original essence transcending human perception and existing before Heaven and Earth were created:

There was something undifferentiated and yet complete,  
which existed before Heaven and Earth.

Soundless and formless, it depends upon nothing external,  
operating in a circular motion ceaselessly.

It may be considered the root (Mother) of all beings under Heaven.

I don't know its name,

And call it *Tao*.

Inadequately giving it another name, I call [it] the Great.<sup>107</sup>

According to Lao-tzu, four great beings exist in the universe: Man, Earth, Heaven, and Tao. Tao is the original essence that moves circularly and ceaselessly, and from the Tao, the three other beings have come into existence. The verse above may be contrasted in terms of architectural light and nature, with a quotation from the Bible that explains the role of light in the genesis of the cosmos: "In the beginning was the Word, and the Word was with God, and the Word was God. He was with God in the beginning. Through Him all things were made; without Him nothing was made that has been made. In Him was life, and the life was the light of men. The light shines in the darkness, but the darkness has not understood it. . . . The true light that gives light to every man was coming into the world."<sup>108</sup>

Dohol Kim interpreted the phrases from the Book of John above in terms of the philosophy of gnosticism, in which soul and body are clearly divided and the Logos, belonging to God, is light, while the cosmos is dark under an evil force. Kim directed his attention to the paradox of the Book of John, in which all creation comes from the creative force of Logos. However, creatures have no true light since only light can beget life, which symbolizes a fragment of Logos, induced from the phrase "the life was the light of men." Light becomes a redeemer that saves humans from the darkness of the cosmos: "Now the earth was formless and empty, darkness was over the surface of the deep . . . God saw the light was good, and He separated the light from the darkness."<sup>109</sup> According to the Bible, the cosmos would be completely dark without the light of Logos.

In contrast, in the Book of Lao-tzu, the universe is independent of light, and the undifferentiated is neither evil nor sinful. The idea of light as distinguishing among the undifferentiated in the Bible had an influence on Western cathedrals, especially on the idea of the sublime. Sublime light contrasting with darkness is artificially “calculated”<sup>110</sup> so that it has a striking effect on the passions. The greatest light symbolizes a mighty force under which humans become relatively weak and sometimes even sinful beings. The nature of the sublime is also so infinite and vast that humans feel suspended and intimidated rather than neutral and natural.

In this context of thought, Beatriz Colomina stressed the relationship between the notion of “threatening” nature and that of a “reassuring” house: “Mies’s houses can be understood as frames for a view: more precisely, frames that construct a view. . . . Shelter, separation from the outside, is provided by the window’s ability to turn the threatening world outside the house into a reassuring picture. The inhabitant is enveloped, wrapped, protected by pictures.”<sup>111</sup> In Colomina’s view, Mies’ houses offer a protective shelter that transforms threatening nature into a framed picture. Similarly, Wright claimed “I saw the house, primarily, as livable interior space under simple shelter. I like the sense of shelter in the look of the building.”<sup>112</sup> In contrast to Colomina’s hostile attitude towards nature, Lao-tzu’s cosmos is independent of the passions (such as sinfulness under mighty force and oppression under immeasurable infiniteness), and his nature literally natural and silent:

Saying few words fits in with Nature.

Therefore a whirlwind does not last a whole morning,

Nor does a rainstorm last a whole day.<sup>113</sup>

If Mies' buildings adapt themselves to Lao-tzu's description of nature as calm rather than threatening, they do not need to be perceived as playing their main role in protecting residents but rather in coexisting with the natural world (Figure 6.17). Following the quiet mood of this world, Mies' space is not intended to have a powerful effect on the passions. His clear space is surrounded by regularly tectonic frames that do not create as strong a contrast between light and darkness as does the space enclosed with stereotomic mass with artificially focused openings. As the natural world that surrounds most of Mies' houses remains natural without any artificial gardening, and the architectural frame, neutral in both form and color, vacates itself to admit the natural world from the outside, the houses reflect the coming and going of nature,<sup>114</sup> that is, the inexhaustible potential of nature.



Figure 6.17 Interior view through the glazed wall of the Farnsworth House, Illinois, 1945-50

Accordingly, Lao-tzu's view of nature suggests a different interpretation of clear space from that of Peter Blake in his account of Mies' universal space: "He [Mies] was, in fact, deeply troubled by it, and his concept of 'universal space'—that is, a structure capable of accepting almost any kind of function, from city hall to automobile showroom—continues to be an interesting notion and is explored in many different areas of building."<sup>115</sup> Blake understood clear space in terms of a simple, multi-functional space as if it were Aladdin's lamp, but Mies' buildings reveal a varied atmosphere that reflects both natural phenomena and inside artifacts. For example, the atmosphere of the Farnsworth House is strongly influenced by the changing nature outside, while that of the New National Gallery of Berlin (Figure 6.18) reveals the different moods of various works of art it contains because the interior space allows for changes in ambience.



Figure 6.18 View of interior exhibition of the  
New National Gallery, Berlin, 1962-68

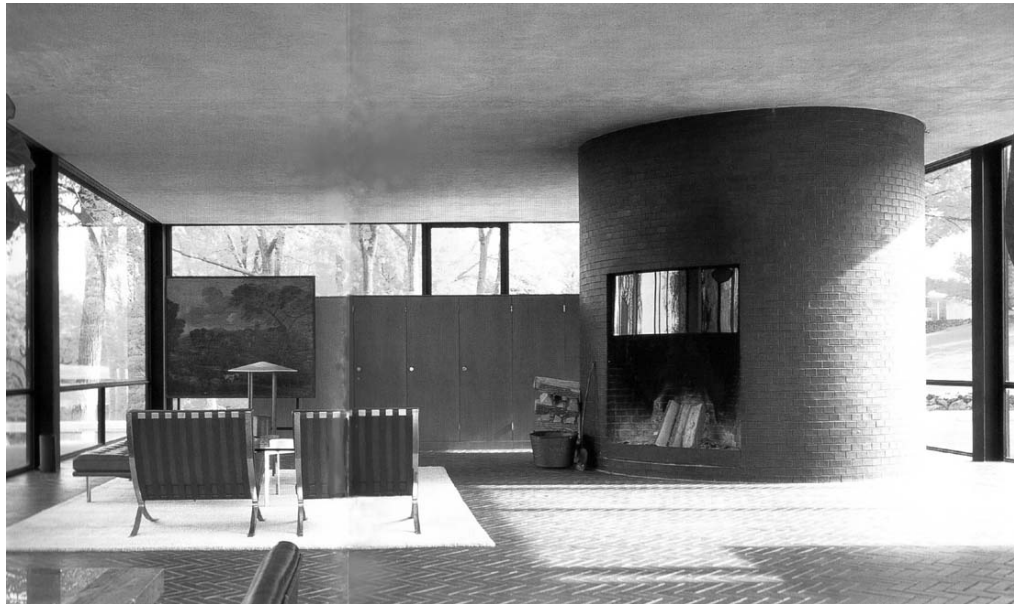


Figure 6.19 View of the living area with a massive chimney core, Philip Johnson, Glass House, New Cannan, Connecticut, 1945-49



Figure 6.20 View of interior space with a fireplace of the Farnsworth House



When asked the role of symmetry in Mies' clear space by Christian Norberg-Schulz, Mies replied as follows:

Why should not a building be symmetrical? In most of the buildings on the campus it is natural to have a staircase in each end and an auditorium or a vestibule in the middle. In this way the buildings become symmetrical if it is natural. But except for this we do not give any importance to symmetry.<sup>116</sup>

In spite of the symmetrical layout of his clear space, Mies considered the overall context of space created naturally without artificial intentions. Not wishing to create a strong, central effect with the hearth, he placed uniform windows to create clear space. Here, Mies differed from Philip Johnson, who exaggerated the hearth of the chimney core in the Glass House of 1949 (Figure 6.19), which was, in all other respects, directly inspired by Mies' design of the Farnsworth House of 1947<sup>117</sup> (Figure 6.20). While Mies originally made the fireplace of the Farnsworth House just a hood and flue<sup>118</sup> above the flat floor as the elusive ideal of almost nothing,<sup>119</sup> Johnson emphasized the chimney core by making it a massive brick cylinder that pierced the roof slab, commenting that "the cylinder, made of the same brick as the platform from which it springs, forming the main motif of the house, was not derived from Mies, . . . The chimney forms the anchor."<sup>120</sup> The chimney or the hearth reflected an approach that intended to deliberately emphasize the importance of the architecture, and at the same time, weakened any attention to the nature beyond the glass wall. Only Mies<sup>121</sup> tried to make his architecture almost nothing. Accordingly, this dissertation proposes that Mies applied concepts of the void to produce more consciously meaningful clear space, after having profoundly understood the idea of Lao-tzu's empty spaces:

Thirty spokes converge upon a single hub;  
It is on the hole in the center that the use of the car hinges.  
We make a vessel from a lump of clay;  
It is the empty space within the vessel that makes it useful.  
We make doors and windows for a room;  
But it is these empty spaces that make the room livable.  
Thus while the tangible has advantages;  
It is the intangible that makes it useful.<sup>122</sup>

The introduction to this dissertation described the importance of Chapter 11 of *Tao Teh King* to Mies' creation of clear space, asserting that around 1930, Dürckheim introduced it to Mies and other Bauhaus people in order to initiate them into Lao-tzu's philosophy. As Cornelis van de Ven regarded the verses of the chapter as "the first examples of an aesthetics of space"<sup>123</sup> in architectural history, Lao-tzu's emphasis not only on the continuity of empty space between the inside and the outside but also on the assemblage of spokes constituting an entire wheel might have greatly impressed Mies, who experimented between 1927 and 1930 on his open plans with flowing space, dynamic space, and clear space. It is proposed that Mies employed Lao-tzu's philosophy for the accomplishment of his clear space on the following grounds: Although Mies fully succeeded in establishing his dynamic space in the Barcelona Pavilion and the Tugendhat House around 1930, his spatial attitude moved from dynamic space to clear space in which he progressively focused on a tectonically extroverted space by creating a more neutral architectural frame that maximally brings out the nature outside.

If Mies really employed Lao-tzu's philosophy to his creation of more meaningful space, it would explain the extent to which his tectonically extroverted space depended on the concept of potential nonexistence of the physical elements—in other words, on his non-architectural intentions such as meditation through nature. Apparently patterning his work based on the philosophy of Lao-tzu, Mies appreciated the decisive role of nonexistence and tried to minimize artificial intentions for the sake of higher integrity and a harmonious whole, the notions of which are analogous to the integration of an entire wheel constituted of thirty spokes regularly arranged and a single hub that is empty but crucial. In both Mies' and Far Eastern traditional spaces, light is naturally uniform and quiet. Thus, it does not stimulate the passions but instead allows calm contemplation and appreciation of a unity between a building and nature. For this higher unity, Mies intentionally lowered the existential voice of his buildings by making them into neutral frames, as he explained in his responses to questions by Christian Norberg-Schulz in 1958:

CNS: "Many are surprised to see that you collect Klee paintings, one finds that it doesn't correspond to your buildings."

MvdR: "I try to make the buildings a neutral frame where human beings and works of art may live their own life. To do this a humble attitude toward things is necessary."

CNS: "When you consider architecture a neutral frame, which role has nature in relationship to the building?"

MvdR: "Nature should also live its own life, we should not destroy it with the colors of our houses and interiors. But we should try to bring nature, houses, and

human beings together into a higher unity. When you see nature through the glass walls of the Farnsworth-house, it gets a deeper meaning than outside. More is asked for from nature, because it becomes a part of a larger whole.”<sup>124</sup>

Although the space between jointed frames is actually covered with glass and that of Far Eastern traditional architecture is filled with thin paper, the glass and the thin paper have the same property that allows communication with the nature outside. The wide entrance terrace of the Farnsworth House (Figure 6.21) permits physical contact beyond visual perception; the perforated window-paper of Eastern traditional architecture also allows those inside to experience light, sound, smell, and wind from the natural world, so



Figure 6.21 View of an open terrace and transparent interior space of the Farnsworth House, Illinois 1945-50

the threshold between the house and nature is obscured. According to Fritz Neumeyer, Mies, trusting in a “self-revelatory” and “unifying metaphysical truth,”<sup>125</sup> let architecture and the natural world “coexist in their respective sphere of autonomy” and merely brought this unifying force to spontaneous “completion by assisting the process of unfolding.”<sup>126</sup> This view contrasted with that of Peter Behrens, who equated order with an analytically “conscious act of will.”<sup>127</sup> Neumeyer called the Farnsworth House a “steel temple” that revealed the “dialectic of structure and openness,” as it is “no longer merely a place for living but a site dedicated to the contemplation of nature and a silent dialogue with the world.”<sup>128</sup>

Neumeyer believed that Mies’ philosophical base for his art of building derived from his readings from Western philosophers such as Saint Augustine and Friedrich Nietzsche, who did not mention architectural space. He also argued on a relationship between Romano Guardini’s Catholic religious books and Mies’ employment of empty space, quoting Guardini’s descriptions “fear of empty space and silence”<sup>129</sup> and “the emptiness of God’s house.”<sup>130</sup> However, Guardini’s concept of emptiness was too solemn and sublime to explain Mies’ bright and neutral space: one can find the neutral notion of empty space distinguished from Guardini’s emptiness in Lao-tzu’s neutral concepts of nature and voids, devoid of passions.

While Fritz Neumeyer explained Mies’ Farnsworth House in terms of the self-revelatory unity between spirit and nature in the boundary of Western philosophy, F. S. C. Northrop, in *The Meeting of East and West* (1946), which Mies possessed, described the attitude of Taoist painters towards nature, focusing on the oneness between spirit and nature in terms of an undifferentiated continuum: “Before taking up brush and pigments,

they went to into nature, and immersed and lost themselves, becoming one with the all-embracing continuum. . .”<sup>131</sup> Northrop regarded the insight that accompanied the appreciation of spiritual, artificial, and natural elements as a continuum of the intangible whole as the bond of unity that “merges the diverse cultures of the East into a single civilization of the Orient.”<sup>132</sup> The concepts of continuum, wholeness, and unity remain essential not only to the mentality of the East but also to that of Mies, who emphasized architecture itself as but a higher unity and a larger whole in the relationship between architecture, human beings, and nature.

Having firmly established the principle of clear space in his work, repeating the basic pattern of structure, Mies did not pioneer any other spatial forms. He explained the reason in terms of constructional details:

We intentionally restrict ourselves to those structures which are possible at the moment and try to work them out in all details. In this way we want to create a basis for further development.<sup>133</sup>

From this and other statements of Mies, one can relate his concept of time to his construction of clear space. He anticipated that the refinement of the modern constructional principle would be accomplished slowly, as the Gothic cathedral developed over a long period.<sup>134</sup> Mies did not hurry, regarding his role as laying a basis for modern construction and pursuing an argument in favor of architecture that discards the extremes, the extravagant and the excessive.<sup>135</sup> The profound similarity between Mies’ view of his role in the art of building and Lao-tzu’s philosophy is manifested in their attitudes of moderation that strives for higher unity.

The revelation of the concept of the void in Mies' creation of clear space, as crucial to the completion of the metaphysically larger whole, as the ultimate objective of the constructional intention of Mies, and as an entity beyond mere visual tectonics and aesthetic expressionism, is the contribution of this dissertation.

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- <sup>1</sup> Mies van der Rohe, "The Preconditions of Architectural Work" (Lecture in 1928). Published in *The Artless Word: Mies van der Rohe on the Building Art* by Fritz Neumeyer, trans. Mark Jarzombek (Cambridge: The MIT Press, 1991), 299.
- <sup>2</sup> See Appendix A.1. Mies wrote in 1924, that "building art as spatial expression is spiritually connected to its time" and in 1927, "the spatial execution of its spiritual decisions."
- <sup>3</sup> Mies van der Rohe, "The Preconditions of Architectural Work" (Lecture in 1928). Published by Fritz Neumeyer, 301.
- <sup>4</sup> Mies van der Rohe, Foreword to the Official Catalog of the Stuttgart Werkbund Exhibition "Die Wohnung" (Stuttgart, 1927). Republished by Fritz Neumeyer, 258.
- <sup>5</sup> Mies van der Rohe, Foreword to *Bau and Wohnung* (Building and Housing) published by the Deutsche Werkbund (Stuttgart, 1927). Republished by Fritz Neumeyer, 259.
- <sup>6</sup> Mies van der Rohe, "Introductory Remarks to the Special Issue, 'Werkbundaussstellung: Die Wohnung'," *Die Form* 2, no.9 (1927): 257. Republished by Fritz Neumeyer, 261.
- <sup>7</sup> Mies van der Rohe, "Lecture" (Unpublished manuscript, Unknown date). Published by Fritz Neumeyer, 325.
- <sup>8</sup> Mies van der Rohe, "Lecture," Unpublished manuscript. Published by Fritz Neumeyer, 250.
- <sup>9</sup> Mies van der Rohe, "What Would Concrete, What Would Steel Be without Mirror Glass?" (a Manuscript of 1933). Published by Fritz Neumeyer, 314.
- <sup>10</sup> Lao Tzu, *Tao Teh Ching*, trans. J.C.H. Wu (New York: St. John University, 1961), Chapter 11.
- <sup>11</sup> Mies van der Rohe, "The H. House, Magdeburg," *Die Schilgenossen* 14, no.6 (1935). Republished by Fritz Neumeyer (1991), 314.
- <sup>12</sup> Mies van der Rohe, "Museum for a Small City," *Architectural Forum* 78, no.5 (1943): 84.
- <sup>13</sup> Lao Tzu, *Tao Teh King: Interpreted as Nature and Intelligence* by Archie J. Bahm (New York, 1958), Chapter XXV.
- <sup>14</sup> Ibid. As Mies wrote not only that "small pictures would be exhibited on free-standing walls" but also that "on the exterior, free-standing walls of stone would define outer courts," he includes exterior walls that stand independently in the boundary of the free-standing wall.
- <sup>15</sup> Mies van der Rohe, Interview of the BBC Third Program (1959). Reported by Peter Carter, *Mies van der Rohe at Work* (New York: The Pall Mall Press, 1974), 181.
- <sup>16</sup> Ibid.
- <sup>17</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100.
- <sup>18</sup> Mies van der Rohe, "The H. House, Magdeburg," *Die Schilgenossen* 14, no.6 (1935). Republished by Fritz Neumeyer (1991), 314.
- <sup>19</sup> Mies van der Rohe, "Museum for a Small City," *Architectural Forum* 78, no.5 (1943): 84.
- <sup>20</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100.
- <sup>21</sup> Mies van der Rohe, "The Adam Building" (manuscript of 1930), Published by Fritz



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- Neumeyer, 305. Kenneth Frampton described Mies' clear space as "an unobstructed clear-span, single-story, unitary volume...enclosed by a plate-glass skin": Kenneth Frampton, "Mies van der Rohe and the Monumentalization of Technique 1933-67," *Modern Architecture* (London: Thames and Hudson, 1980), 235.
- <sup>22</sup> "do nothing": 無爲
- <sup>23</sup> *The Book of Lao Zi* (Beijing, Foreign Language Press, 1993), Chapter 43
- <sup>24</sup> Ibid.
- <sup>25</sup> Mies van der Rohe, "The Preconditions of Architectural Work" (Lecture in 1928). Published by Fritz Neumeyer, 299.
- <sup>26</sup> Philip Johnson, *Mies van der Rohe* (New York: The Museum of Modern Art, 1947), 49.
- <sup>27</sup> William H. Jordy, "The Symbolic Essence of Modern European Architecture in the Twenties and Its Continuing Influence," *JSAH* 22, no.3 (October 1963): 182.
- <sup>28</sup> Ibid.
- <sup>29</sup> Werner Blaser, *Less is More- Mies van der Rohe* (Zürich: Birkhäuser Verlag, 1986), 14.
- <sup>30</sup> Ibid.
- <sup>31</sup> Carlo Enrico Rava's expression that refers to Mies' architecture, quoted in Juan Pablo Bonta, *Architecture and its interpretation* (New York: Rizzoli, 1979), 141. Original text is in "Il padiglione di Mies van der Rohe a Barcelona," by Carlo Enrico Rava, *Domus* (Mar. 1931)
- <sup>32</sup> Peter Carter, *Mies van der Rohe at Work* (New York: The Pall Mall Press, 1974), 24.
- <sup>33</sup> Vincent Scully, "Architecture, Sculpture, and Painting: Environment, Act, and Illusion," in *Collaboration: Artists and Architects*. ed. Barbaralee Diamonstein (New York: Whitney Library of Design, 1981), 40.
- <sup>34</sup> Ibid.
- <sup>35</sup> Ibid.
- <sup>36</sup> Ibid.
- <sup>37</sup> Op. cit., 43.
- <sup>38</sup> Peter Blake, *Mies van der Rohe, Architecture and Structure* (Baltimore: Penguin Books, 1960), 87.
- <sup>39</sup> Op. cit., 86.
- <sup>40</sup> Andres Lepik, "Mies and Photomontage, 1910-1938," *Mies in Berlin* (New York: the Museum of Modern Art, 2001), 325.
- <sup>41</sup> Justus Bler, "Kann Man Im Haus Tugendhat Wohnen?" *Die Form* (Oct. 1931), 392-392. trans. in "Machines à Méditer" by Richard Padovan, in *Mies van der Rohe: Architect as Educator*, ed. Rolf Achilles et al. (Chicago: the University of Chicago Press, 1986), 24.
- <sup>42</sup> Robert Venturi, *Complexity and Contradiction in Architecture* (New York: the Museum of Modern Art, 1977) 17.
- <sup>43</sup> Ibid.
- <sup>44</sup> Robert Venturi, Op. Cit., 16.
- <sup>45</sup> Caroline Constant, "The Barcelona Pavilion as Landscape Garden, Modernity and the Picturesque, *AA files* 20 (Autumn, 1990): 48.
- <sup>46</sup> Caroline Constant, Op. cit., 53.
- <sup>47</sup> Amos Ih Tiao Chang, *Intangible Content in Architectonic Form* (Princeton: Princeton University Press, 1956), 70-71.

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- <sup>48</sup> Grete Tugendhat, “Die Bewohner des Hauses Tugendhats äussern sich,” *Die Form* (Nov. 1931), 437-438. Trans. by Richard Padovan, 25.
- <sup>49</sup> Richard Padovan says that Mies’ intention of the Tugendhat House goes “to the enhancement of the experience of life itself.” in “Machines à Méditer”: 25.
- <sup>50</sup> Mies van der Rohe, “On Form in Architecture” *Die Form* 2, no.2 (1927):59. Republished by Fritz Neumeyer, 257.
- <sup>51</sup> Klaus-Peter Gast, *Louis I. Kahn: the Idea of Order*, translated from German by Michael Robinson (Boston: Birkhauser-Verlag, 2001), 73-74. Klaus-Peter Gast explains the fireplace of the Fisher House in terms of a spatial element, relating its role in zoning areas to the phenomena of Mies’s free-flowing space: “The fireplace block, a free-standing sculpture in the room, has a rustic materiality that stands in contrast with the smooth walls, and is a zoning element inside the living cube. It divides the living and eating area inside a spatial concept that was originally free-‘flowing,’ almost Miesian.”
- <sup>52</sup> Randall Ott, “Reflections on the Rational and the Sensual in the Work of Ludwig Mies van der Rohe,” *Arris: Journal of the Southeast Chapter of the Society of Architectural Historians* 4 (1993): 42.
- <sup>53</sup> Randall Ott, 53.
- <sup>54</sup> Ibid.
- <sup>55</sup> Mies van der Rohe, “Museum for a Small City,” *Architectural Forum* (1943), Republished by Fritz Neumeyer, 322.
- <sup>56</sup> Werner Blaser, *West meets East--Mies van der Rohe*, (Basel: Birkhäuser Verlag, 1996), 7.
- <sup>57</sup> Werner Blaser, *West meets East--Mies van der Rohe* 6. Blaser wrote as follows: “On the other hand, Mies van der Rohe was a collector of Chinese books, and the writings of Confucius and Laotse formed part of his library. But his friendship with Frank Lloyd Wright and Hugo Häring, who in the West prepared the way for an awareness of Far Eastern building methods, was certainly also influential. Additionally, his conversations with that profound expert on Eastern wisdom Graf Karlfried von Dürckheim, who at the time had been engaged by Mies to give lectures at the Dessau Bauhaus, may have strengthened this influence.”
- <sup>58</sup> Werner Blaser, *Less is More- Mies van der Rohe* (Zürich: Birkhäuser Verlag, 1986), 14.
- <sup>59</sup> Op. cit., 74.
- <sup>60</sup> Lao Tzu, *Tao Teh King: Interpreted as Nature and Intelligence by Archie J. Bahm* (New York, 1958), Chapter XI.
- <sup>61</sup> The following Chinese words correspond to the following meaning of the void.  
 冲: the void that signifies an empty vessel in Chapter 4.  
 卍 : the void in chapter 5.  
 無: empty space and non-existence in Chapter 11.
- <sup>62</sup> Amos Ih Tiao Chang, 29-30.
- <sup>63</sup> Op. cit., 4, Chapter 39.
- <sup>64</sup> Ibid.
- <sup>65</sup> Dohol Kim’s definition in Korean
- <sup>66</sup> Mies van der Rohe, in Stanley Abercrombie, “Much Ado about Almost Nothing: Rescuing Mies’ Farnsworth House, a Clear and Simple Statement of What Architecture

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- Can Be," *Preservation* 52 no.5 (Sept.-Oct 2000): 64.
- <sup>67</sup> Stanley Abercrombie, *Ibid.*
- <sup>68</sup> Mies van der Rohe, "Architecture and Technology," *Arts and Architecture* 67, no.10 (1950): 30.
- <sup>69</sup> The name of editor is not indicated. A concluding pictorial essay, "The Evolution of the Craftsmanship," *Perspecta* no.3 (1955): no page indicated.
- <sup>70</sup> Mies van der Rohe, "Office Building," *G*, no.1 (July 1923): 3. Republished by Fritz Neumeyer, 241.
- <sup>71</sup> Stéphane Mallarmé, *Mallarmé: Selected Prose, Poems, Essays and Letters*, ed. Bradford Cook (Baltimore: Johns Hopkins University Press, 1956), 57.
- <sup>72</sup> Mies van der Rohe, in "Ludwig Mies van der Rohe: 1886-1969," by Water F. Wagner, Jr., *Architectural Record* 146 (Sept. 1969): 9.
- <sup>73</sup> Mies van der Rohe, "The Preconditions of Architectural Work" (Lecture in 1928). Published by Fritz Neumeyer, 299.
- <sup>74</sup> Farnsworth's words documented in "Much ado about almost nothing: rescuing Mies' Farnsworth House, a clear and simple statement of what architecture can be," by Stanley Abercrombie, *Preservation* 52, no.5 (2000 Sept.-Oct.): 66.
- <sup>75</sup> K. Michael Hays, "The Mies Effect," *Mies in America* (New York: H.N. Abrams, 2001), 701.
- <sup>76</sup> Mies van der Rohe, Interview for the BBC program (1959), Reported by Peter Carter, 181.
- <sup>77</sup> Mies van der Rohe, reported by Peter Carter, 180.
- <sup>78</sup> Phyllis Lambert, "Mies Immersion: Space and Structure," *Mies in America* (New York: H.N. Abrams, 2001), 447.
- <sup>79</sup> Mies van der Rohe, Reported by Peter Carter, 181.
- <sup>80</sup> For Mies, this consciously creative order related to details, reminds one of Lao-tzu's verses that embody the concepts of both the tranquil and the hasty:
- Calmness or self-sufficiency is superior to being agitated.  
Therefore the intelligent man, though he goes on a long journey,  
will never depart far from his means of conveyance.  
(Lao-tzu, *Tao Teh King*, Chapter XXVI)
- The lesson this verse teaches is that, in order to be calm, one must solve the agitation or actual problems that hinders calmness. The intelligent man, well aware of realities, does not stray "far from his means of conveyance" but retains his tranquility, which is possible only after he has mastered all the actual problems. If one applies Lao-tzu's verse to Mies' clear space, one can understand that architects may achieve the quiet atmosphere of space only after mastering construction methods and controlling them down to the smallest details.
- <sup>81</sup> Reyner Banham, "On trial, Mies van der Rohe: Almost Nothing is Too Much," *Architectural Review* 132 (September 1962): 128.
- <sup>82</sup> *Ibid.*
- <sup>83</sup> Stanley Abercrombie, *Op. cit.*, 66.
- <sup>84</sup> *Ibid.*
- <sup>85</sup> Mies van der Rohe, "Architecture and Technology," *Arts and Architecture* 67, no.10 (1950): 30.

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- <sup>86</sup> Amos Ih Tiao Chang, 59, Chapter 40.
- <sup>87</sup> Branden W. Joseph, "John Cage and the Architecture of Silence," *October* 81 (Summer, 1997): 85.
- <sup>88</sup> John Cage, this lecture was entitled "Experimental Music" in 1957, reported by Branden W. Joseph, Op. cit., 85.
- <sup>89</sup> Mies van der Rohe, Interview for the BBC program (1959), Reported by Peter Carter, *Mies van der Rohe at Work* (New York: The Pall Mall Press, 1974), 181.
- <sup>90</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100. Mies says, "I try to make the buildings a neutral frame where human beings and works of art may live their own life." See Appendix A.4.
- <sup>91</sup> Amos Ih Tiao Chang, 13. Chang, referring to the phrase of chapter 28, which says "the way to acquire positive is to contain negative," explains as follows: "Negativism in color, consequently, means that whenever a color contains greyness, it has its intangible content of its opposite and thus is capable of harmonizing its opposite at ease."
- <sup>92</sup> Kenneth Frampton, *Modern Architecture* (London: Thames and Hudson, 1980), 235.
- <sup>93</sup> Henry Russell Hitchcock, *The International Style* (New York: W.W. Norton, 1995), 29.
- <sup>94</sup> This signifies "tectonic" enclosures.
- <sup>95</sup> Colin Rowe, "Neo-'Classicism' and Modern Architecture II," *The Mathematics of the Ideal Villa and Other Essays* (Cambridge: The MIT Press, 1976), 143.
- <sup>96</sup> Colin Rowe, Op. cit., 149.
- <sup>97</sup> Wolf Tegethoff, "From Obscurity to Maturity: Mies van der Rohe's Breakthrough to Modernism," *Mies van der Rohe, Critical Essays*, ed. Franz Schulze (New York, 1989), 55.
- <sup>98</sup> William J. R. Curtis, *Modern architecture since 1900* (New Jersey: Prentice Hall, 1996), 192.
- <sup>99</sup> Neil Levine, "Abstraction and Representation in Modern Architecture; the International Style of Frank Lloyd Wright, *AA Files* no.11 (Spring 1986): 13.
- <sup>100</sup> Robert McCarter, *Frank Lloyd Wright* (London : Phaidon Press, 1997), 87.
- <sup>101</sup> I use the Doreen Ehrlich's expression "an integrated whole," in Doreen Ehrlich, *Frank Lloyd Wright at a Glance: Glass* (London : B.T. Batsford, 2001), 36.
- <sup>102</sup> Gottfried Semper, *The Four Elements of Architecture and Other Writings* (Cambridge: Cambridge University Press, 1989), 102.
- <sup>103</sup> Louis I. Kahn, *Louis I. Kahn: Writings, Lectures, Interviews*, edited by Alessandra Latour (New York: Rizzoli International Publications, 1991), 296.
- <sup>104</sup> Jeffry Kieffer, *Readings from the Architecture of Louis I. Kahn* (Xlibris Corporation, 2001), 13.
- <sup>105</sup> To define their buildings in Gottfried Semper's terms, most of them are "stereotomically" introverted rather than "tectonically" extroverted; the tectonic means "clearly jointed, framing elements with a screenlike covering," in contrast to the "stereotomic," defined as "a massive continuum of solid matter." The words, "stereotomically introverted" may be interpreted as having two meanings: firstly, one emphasizes the characteristic of solidity using stereotomic techniques; the other focuses on the interior covered with the solid enclosure.

- <sup>106</sup> Tao: 道. In Lao Tzu's *Tao Teh King*, which Mies had, Archie J. Bahm interprets Tao as Nature with a capital "N," but the meaning of Tao does not always correspond to the concept of nature in English. Therefore, I use the "Tao" as a term that replaces 道 in Chinese and refer to The Book of Lao Zi, in which the 道 is interpreted as Tao by Chinese although the English expression of the interpretation is almost literal.
- <sup>107</sup> *The Book of Lao Zi*, chapter 25.
- <sup>108</sup> *The Holy Bible*, New International Version (1984), John 1:1-1:5 and 1:9. In Chinese Bible, they interpret the Word as "Tao" (道), so they identify God's Word with Tao under the influence of Lao-tzu's Taoism.
- <sup>109</sup> *The Holy Bible* (1984), Genesis 1:2 and 1:4.
- <sup>110</sup> Edmund Burke, "Light in Building," *Philosophical Enquiry into the Origin of Our Ideas of the Sublime and the Beautiful* (London: Printed for Vernor and Hood et al., 1798), part II-XV, 146-147. He wrote as follows: "As the management of light is a matter of importance in architecture, it is worth enquiring, how far this remark is applicable to building. I think then, that all edifices calculated to produce an idea of the sublime, ought rather to be dark and gloomy, and this for two reasons; the first is, that darkness itself on other occasions is known by experience to have a greater effect on the passions than light. The second is, that to make an object very striking, we should make it as different as possible from the objects with which we have been immediately conversant; when therefore you enter a building, you cannot pass into a greater light than you had in the open air; to go into one some few degrees less luminous, can make only a trifling change; but to make the transition thoroughly striking, you ought to pass from the greatest light, to as much darkness as is consistent with the uses of architecture. At night the contrary rule will hold, but for the very same reason; and the more highly a room is then illuminated, the grander will the passion be."
- <sup>111</sup> Beatriz Colomina, "Mies Not," in *The Presence of Mies*, ed. Detlef Mertins (New York: Princeton Architectural Press, 1994), 214.
- <sup>112</sup> Frank Lloyd Wright, *An Autobiography* (New York: Horizon Press,) 1977, 166.
- <sup>113</sup> *The Book of Lao Zi* (1993), Chapter 23.
- <sup>114</sup> I use Werner Blaser's expression "the coming and going of nature," in *Mies van der Rohe-Farnsworth House* by Werner Blaser, 22.
- <sup>115</sup> Peter Blake, *Form Follows Fiasco – Why Modern Architecture Hasn't Worked* (Boston and Toronto: Atlantic Monthly Press, 1977), 25.
- <sup>116</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100.
- <sup>117</sup> Kenneth Frampton, "The Glass House Revisited," in *The Glass House* by Philip Johnson, (New York: Pantheon Books, 1993), 93. Original text is in *Processes*, Philip Johnson (New York, 1978), catalogue 9.
- <sup>118</sup> The surrounding floor of fireplace was raised afterwards for preventing ashes from swirling.
- <sup>119</sup> I use Stanley Abercrombie's expression "the elusive ideal of 'almost nothing'," in "Much Ado About Almost Nothing" by Stanley Abercrombie, 67.
- <sup>120</sup> Kenneth Frampton, Op. Cit., 105.
- <sup>121</sup> In the Resor House Project of 1938, Mies designed rather a massive fireplace. Cammie McAtee argues that, "Mies never assigned it such a symbolic role in

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- composition"-- Cammie McAtee, "Alien #5044325, Trip to America," in *Mies in America* ed. Phyllis Lambert (New York: H.N. Abrams, 2001), 175.--like Wright' design, although he was impressed by the fireplace and the spatial energy of Taliesin by Wright. The Resor House project is the first American work of Mies, so his seems to consider American taste for the fireplace. However, he designs the fireplace as one of his material freestanding walls rather than the symbolically focal point of space.
- <sup>122</sup> Lao Tzu, *Tao Teh Ching*, translated by J.C.H. Wu (New York: St. John University, 1961), Chapter 11.
- <sup>123</sup> Cornelis van de Ven, *Space in Architecture: the Evolution of a New Idea in the Theory and History of the Modern Movements* (Amsterdam: Van Gorcum Assen, 1978), 8.
- <sup>124</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100.
- <sup>125</sup> Fritz Neumeyer, 56.
- <sup>126</sup> Ibid.
- <sup>127</sup> Ibid.
- <sup>128</sup> Fritz Neumeyer, 50.
- <sup>129</sup> Romano Guardini's words, the source of which is not indicated, in *The Artless Word: Mies van der Rohe on the Building Art* by Fritz Neumeyer, 231.
- <sup>130</sup> Romano Guardini, "Das Leere," *Die Schildgenossen*, 16, no.2-3 (1936-37): 130. Quoted by Fritz Neumeyer, 231.
- <sup>131</sup> F. S. C. (Filmer Stuart Cuckow) Northrop, *The Meeting of East and West: an Inquiry Concerning World Understanding* (New York: Macmillan, 1946), 330.
- <sup>132</sup> F. S. C. Northrop, Op. cit., 315.
- <sup>133</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100.
- <sup>134</sup> Ibid. For further details of Mies' statements, see Appendix A.4.
- <sup>135</sup> I use Lao-tzu's expression "the extremes, the extravagant and the excessive" in *The Book of Lao Zi* (1993), Chapter 29.

## **CHAPTER 7**

### **MIESIAN TECTONICS**

#### **7.1 The Organization**

While Chapters 4, 5, and 6 claimed that Mies' keynotes on his art of building covered structural, material and then, spatial concerns, particularly those regarding concerns of voids, Chapter 7, as a synthetic chapter, will investigate Mies' art of building by applying concepts of tectonics (discussed in Chapter 2) in terms of structure, material, and space. In terms of structure, Chapter 7.1 will attempt to interpret his meaning of structure by relating it to the concepts of organic order and detailing and by drawing parallels between his concept of structure and concepts of tectonics (discussed in Chapter 2.2 Construction, Structure, and Tectonics). In terms of material, Chapter 7.2 will attempt to elucidate Mies' intentions by relating them to material minimalism and by using two notions of material construction (discussed in Chapter 2.3 Stereotomics and Tectonics). Finally, in terms of space, Chapter 7.3 will attempt to interpret the meaning of Mies' spatial intention by analyzing his montages in terms of an intangible atmosphere rather than a tangible presentation. This chapter will also discuss his intention to create tectonic atmosphere by comparing Mies' art of building with the terms *techné* and technology (defined in Chapter 2.1 Techné, Technique, Technology, and Tectonics).

## 7.2 Mies' Structure and Tectonics

This chapter attempts to reveal Mies' art of building in both terms of structure and tectonics (discussed in Chapter 2.2). Eduard F. Sekler defined the term tectonic as pertaining to visual qualities that clearly express "the play of forces"<sup>1</sup> of forms beyond structural and constructional description. In order to more concretely convey the meaning of tectonic, Sekler provided an example of the Greek Doric temple, that is, the Parthenon, saying, "Obviously what matters, apart from other factors which are outside the scope of the present essay, is the tectonic statement: the noble gesture which makes visible a play of forces, of load and support in column and entablature, calling forth our own empathetic participation in the experience."<sup>2</sup> According to Sekler, people empathetically feel a play of forces in the Greek Doric order although its stereotomic material doesn't match the tectonic, post-and-linter structure, which requires bending moments. Moreover, the constructional method was inefficient in that it required extreme precision in a process joining complicated shapes of stone without mortar. Although the Doric order of the Parthenon cannot be described in terms of structural rationality of material and constructional efficiency, Sekler argued that it preserved a tectonic quality producing a visually dynamic feeling of load and support through its post-and-linter form.

In a similar way, Sekler argued that Mies' excellent architecture should not be defined within the boundary of structure or construction but in terms of "tectonic expressiveness refined to an extreme degree," continuing as follows: "A comparison of the ways in which he has handled corner-piers in a sequence of buildings will bear out the truth of this assertion, for we find variations which have but little structural or



constructional justification but which are most telling tectonically.”<sup>3</sup> Sekler found tectonic quality in the variation of Mies’ corner detailing, which did not come from the change of structural system. According to Sekler, the tectonics of Mies had little relationship with structural forces in contrast to the tectonics of the Greek Doric temple, which showed the dynamic flow of load. His definition of tectonics seemed rather broad, including within the boundary of tectonics all expressive qualities that “cannot be explained by structural and constructional reasons alone.”<sup>4</sup>

Sekler’s tectonics may have been based on the dichotomy of Bötticher’s tectonics, that between structural reason and representational art, as he still focused on structural “corner-piers” and the expressive variation of corner detailing in his discussion of Mies’ tectonics. This dissertation categorized the dichotomy of Bötticher’s tectonics as the second definition (discussed in Chapter 2.2 “Construction, Structure, and Tectonics”) and tectonics concerned with material construct based on order that reveals spatial quality as the third. In contrast to the concept of structural logic, based on dynamic reason in the second category, the concept order signifies an intrinsically systematic rule that reveals the meaningful integration of architectural elements. Mies stated that “order imparts meaning,” and continued as follows:

If we would give to each thing what intrinsically belongs to it, then all things would easily fall into their proper place; only there they could really be what they are and there they would fully realize themselves.<sup>5</sup>

Interpreting not only Mies’ corner detailing but also the Greek Doric order in terms of tectonic order, one will achieve a deeper understanding of them beyond their expressive qualities. The notion of tectonic order may be a dialectic concept that elucidates the

contradiction between stereotomic material and tectonic structure of the Doric order and unifies the structure and outer detailing of Mies' buildings.

While Sekler focused on an expressive quality based on structural forces in his tectonics, Mies emphasized the intrinsic and proper place of things for their full realization in the order of architecture. Mies' concept of order is autonomous and inherent, so it may overcome the severe gap of the dichotomy between structure and art, providing a theory of tectonics at another level of comprehensive interpretation. If one approaches Mies' corner details and the Greek Doric in terms of tectonic order, the structural thinking on the Mies' corner detailing may be revised to one of Miesian cladding order revealing his tectonics, and the material logics of the Doric may be adjusted to the concept of intrinsic order representing classic tectonics.

According to Demetri Porphyrios, a tectonic experience conveys a sense of freedom as well as that of the necessary. Tectonic order situated beyond the structural and constructional necessity "set its rules as an image and make believe of real construction."<sup>6</sup> Once the tectonic order is set up, it becomes "a treasure to be retained in memory and transmitted."<sup>7</sup> Mies stated in 1928 that "we stand at a turning point of time,"<sup>8</sup> arguing in 1930 that "the new time is a fact; it exists whether we say yes or no to it."<sup>9</sup> Mies regarded mechanization, typification, standardization, and even the changed economic and social conditions as facts, but he thought that all these phenomena go their "fateful, value-blind way." Therefore, he argued that "we have to become master of the unleashed forces and build them into a new order, an order that permits free play for the unfolding of life."<sup>10</sup>

This dissertation proposes that in order to constructively realize the great object

demands of his epoch, Mies created a new tectonic order that was basically structured in both a layered and a hierarchical organization.<sup>11</sup> Mies' cladding order, which encloses clear space, represents a layered organization, which shows a sequential process of the curtain-wall clad on a structural frame. On the other side, Mies' detailing related to the whole is concerned with a hierarchical organization. However, Mies used order rather than organization, explaining as follows:

Order is more than organization. Organization is purposeful. Order is meaningful, and this is what it shares with the building art.<sup>12</sup>

For Mies, order more accurately implied tectonic order: here, the term tectonic signifies a meaning pertaining to the art of framing construction jointed with linear elements and incrustated with lightweight cladding. Order was meaningful to Mies only if it had a relationship with his art of building, more accurately, that based on framing construction.

As a layered order, Mies created a new cladding system that enclosed clear space for the unfolding of modern life. Mies attempted to make a new cladding order identified in the correlation between the curtain-wall and frame structure rather than in unilateral subordination to structural expression. The variation of the corner details comes from the change in the curtain-wall systems, which is slightly dependent on the supporting structure, such as the "piers" that Sekler focused on. The polished details of the curtain-wall system render Mies' buildings manifoldly expressive and tectonically refined in appearance without any changes in the structural system.

The diverse countenances of building corners naturally come from different skin systems. Peter Carter divided the skin solutions of Mies' high-rise buildings into three types<sup>13</sup> (Figure 7.1). In the first type, the skin is an infill between the columns and the

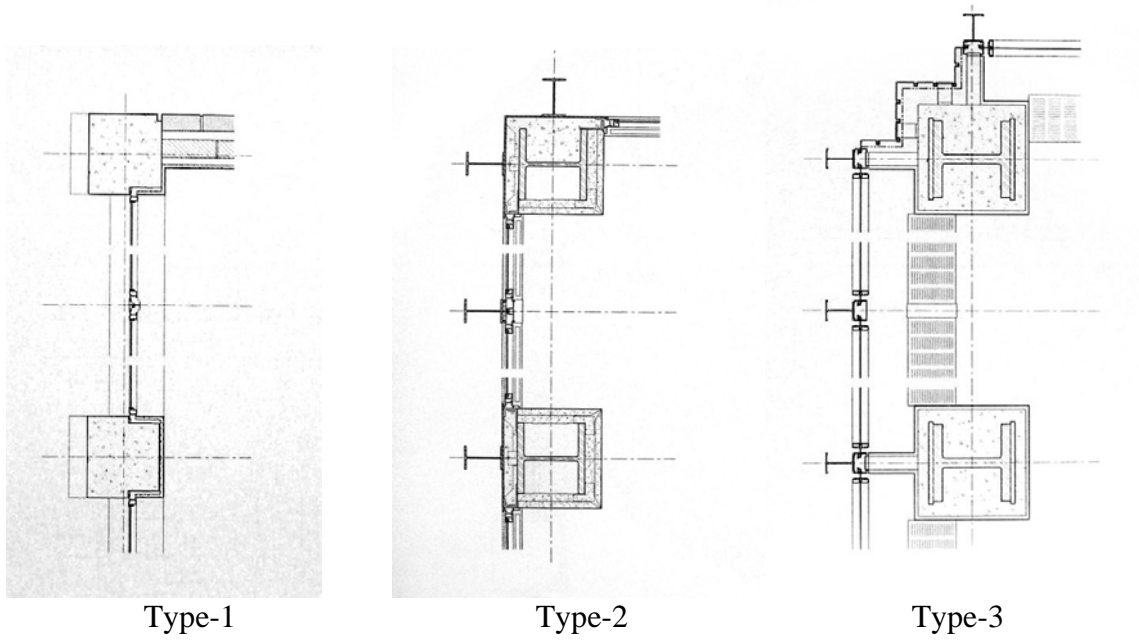


Figure 7.1 Three skin solutions of Mies' high-rise buildings



Figure 7.2 Curtain-wall of the Toronto Dominion Centre, Toronto, 1963-67

floor beams. In the second type, the glass wall is set between the structural frames as in the first type, but its exterior surface is contiguous with the steel cover plates of the structure on all sides of the building. Steel mullions, attached on the exterior face under a regular module, extend continuously enough to give an impression that integrates the inner structure and the covering membrane. In the third type, the enclosed skin is independently situated from the inner structure except at the supporting connection between the skin and the structure. Exterior mullions are also arranged as regularly as those of the second type. The Lake Shore Drive apartments belong to the second type, and the other three buildings illustrated by Sekler, the Commonwealth, the Lake View Drive, and the Charles Center, are in the third type. The Seagram Building, the first high-rise building of Mies, is also in the third type.

As one finds that the majority of Mies' later high-rise buildings come under the third type, the most independent skin type of an inner structure among the three types, Mies' concerns on high-rise buildings focused on the outer pattern of exterior skins. Detlef Mertins called the pattern of the Mies' curtain wall "a mass ornament,"<sup>14</sup> juxtaposing the pictures of the curtain-wall of the Toronto Dominion Centre of 1963-67 (Figure 7.2) with those of straight rows of workers in factories and a mass sport of anonymous crowds lining up. The mass ornament of Mies' curtain wall was sometimes confused with the superficially mechanical pattern of marginal buildings. On the issue of the superficial skin of contemporary buildings, Peter Davey referred to the marginalization of architects: Today's capitalism, global commodification, and complex constructional situation make the roles of architects limited to the skin, a relatively inexpensive element that can effect quite dramatic differences in appearance. According

to Davey, one reaction against this notion of architecture as skin-deep comes from the sensibility in which the material qualities of buildings are immensely important. Davey asserts: “Just as we need sustainable strategies for giving tectonic presence to buildings (in effect, democratising the tectonic), we should recognize that deep human responses to materials can extend much more widely than to the traditional palette of materials discussed by Vitruvius. . . . New materials should be explored with a sensuous understanding of the tectonic as well as technological efficiency.”<sup>15</sup>

To disabuse a notion that architecture is skin-deep, one may agree with Davey’s emphasis on the exploration of new materials; however, Mies’ point of view on material construction is different from Davey’s as Mies emphasized the art of construction itself:

Any material, whether natural or artificial, has its special properties which one must know before one can work with it. New materials and new methods of construction are not necessarily superior. What matters is the way they are handled. The value of a material depends on what we make of it.<sup>16</sup>

Mies unambiguously established the priority of his educational principle by emphasizing “the way materials are handled,” that is, the art of material construction and its order and detail prior to the development of new materials or new constructional methods.

Mies’ detailing is related to the hierarchical order of the whole construction. He contrasts the idealistic principle of order to the organic principle of order:

The idealistic principle of order, however, with its over-emphasis on the ideal and the formal, satisfies neither our interest in simple reality nor our practical sense. So we shall emphasize the organic principle of order as a means of achieving the successful relationship of the parts to each other and to the whole.”<sup>17</sup>

Mies' organic order may be characterized to reveal unity. According to Adolf Behne, craftsmanship is generally distinguished from technology in terms of the division of labor and the type of unity. In craft, work execution is accomplished by one person, so it can realize the "personal, natural, and organic unity"<sup>18</sup> of artifacts. In technology, however, work processes are divided among an inventor and executors, so the supra-personal, intellectual, and formal unity of products is the result of a collective process.

Mies recognized architectural technology, especially standardization and mechanization, as unavoidable, value-blind forces, arguing as follows:

What is decisive is only how we assert ourselves toward these givens. It is here the spiritual problems begin.<sup>19</sup>

Mies seemed to anticipate the intellectual but formal characteristics of industrialized construction based on architectural technology. In order to overcome the automatic and conceptual process of new technological architecture, Mies, advocating an organic order which can unify a whole building and having its value reach into the level of art, stated as follows:

Building art in its simplest forms it still rooted in purpose, but it reaches through the whole scale of value in the highest realms of spiritual being, into the sphere of pure art.<sup>20</sup>

For Mies, building was to the art of building what formal order was to organic order, which Mies attempted to create through his craft-like detailing. According to Edward R. Ford, "In one sense, detailing was born when craftsmanship died,"<sup>21</sup> but described Mies as an architect "obsessed with workmanship and craft" as well as "good detailing."<sup>22</sup> Ford explained Mies' good detailing by illustrating that of the Barcelona Pavilion. As the

structural framework in the construction of the building was crude, Mies clad it with precise layers of plaster, stone, and sheet material, allowing a precision appropriate to their nature. Ford called this constructional principle of Mies discerning material properties from the very crude to the very precise “hierarchies of craftsmanship.”<sup>23</sup> Mies attempted to establish organic order on a higher level, in which layered order follows the hierarchical order of precision: Mies’ detailing enables the same precise management of material property as the level of craftsmanship.

The common denominator between architecture and construction may be the architectural detailing. The importance of detailing should be accentuated under the industrialized construction system, where jobs of architects and builders are clearly divided, and the builders are no longer craftsmen. In this situation, detailing plays a communicative role through which architects effectively explain their intentions to builders. The better the details are organized, the narrower the gap is between architectural intention and constructed reality. Without sufficient details to present the expected image of a building, the result of the building would be left to the builder’s discretion. Without enough details, architecture remains an abstract form, so they play a critical role in transforming a conceptual design into constructional reality. An excellent building is organized following an organic order and there, visitors get a multi-sensory experience intended by an architect.

Juhani Pallasmaa introduced the concept of “multisensory experience” as follows: “An impressive architectural experience sensitizes our whole physical and mental receptivity. It is difficult to grasp the structure of feeling because of its vastness and diversity. In experience, we find a combination of the biological and the culturally



derived, the collective and the individual, the conscious and the unconscious, the analytical and the emotional, the mental and the physical.”<sup>24</sup> Pallasmaa, worrying over contemporary architectural trend that adheres to the conceptual composition of elementary forms without considering the sense of detailing, warned: “The elementarist view has also been dominant in the theory, teaching, and practice of art and architecture. These have at the same time been reduced solely to arts of the visual sense.”<sup>25</sup> In order to achieve the organic order that allows a multi-sensory atmosphere to be experienced through real construction beyond the formal order designed by the mere organization of given forms, Mies persevered in creating divinely organic details to the extent that “God is in the details.”

Vittorio Gregotti, warning that “a wide gap has formed between reality on the one hand and the construction of architecture on the other,”<sup>26</sup> described the play of details in his another writing: “Clearly, detail does not depend mechanically on any overall concept, although it must have structural relations to such a concept. Detail does not exist solely to declare general decisions; rather, it gives direct form to such decisions, embodies their physical existence, and renders the meaning of different parts articulate and recognizable.”<sup>27</sup> For Mies, spatial experience may have been the final goal of his tectonics, so detailing was not only a tool that embodied his organic order in the physical dimension but also a crucial part of his tectonics that revealed the intangible philosophy of Mies’ architecture.

Christian Norberg-Schulz, indicating the similarity between the construction of Crown Hall and that of the Mannheim Theater, asked why Mies repeated “the same construction principle instead of experimenting with new possibilities.” Mies responded

by stressing the importance of details.

We limit ourselves to the construction that is possible at the moment and attempt to clarify it in all details. In this way we want to lay a basis for future development.<sup>28</sup>

From the conversation above, one may clearly understand that Mies wanted clear space that flexibly contained modern life style by clarifying the tectonics of his clear space in all details and by ordering it in an integrated whole based on the constructional industry of his time. Fritz Neumeyer also evaluated Mies' steel building as embodying "objective order,"<sup>29</sup> in which technical and spiritual values integrated into a higher unity. By realizing an integrated body of building that contained Miesian clear space based on the clear lawfulness of an organic order, Mies actually embodied his art of building, which after 1923,<sup>30</sup> he attempted to establish as his own innovative theory of framing construction: This dissertation refers Mies' embodied art of building based on organic order and detailing as one characteristic of Miesian tectonics.

### **7.3 Mies' Material and Tectonics**

This chapter attempts to reveal Mies' material intention in his art of building by examining it in both material terms of stereotomics and tectonics (discussed in Chapter 2.3). Although the concealed structure and seamless joints of Mies' buildings are generally considered as atectonic under existing tectonic logic, but his minimalistic approaches maintain consistency. Mies' principle in his material art of building seems

contradictory to existing supportive concepts, or even to Semper's concept of material. On the basis of the Semper's taxonomy, stereotomics and tectonics, Kenneth Frampton defined tectonics as a building procedure in which "lightweight, linear components are assembled so as to encompass a spatial matrix,"<sup>31</sup> describing the Barcelona column as atectonic: "Like Le Corbusier's pilotis in his Purist plan libre, this [Barcelona] column has neither base nor capital. Both column types are, in fact, abstractions of the idea of support, since, due to the fact that no beams are expressed in either instance, a somewhat insubstantial act of bearing is conveyed by the form. In both instances the ceiling is treated as a flat, continuous plane. Here we see how modern, beamless construction favors the suppression of the frame; that is to say, it eliminates the very trabeation that for Perret was a prerequisite of tectonic culture. In this regard, both the Villa Savoye and the Barcelona may be seen as atectonic. . ."<sup>32</sup> Frampton seemed to consider the construction of the Barcelona Pavilion as atectonic as it does not express the trabeation structure, concealing beams in the flat white ceiling, and the Barcelona column as abstract, as it "has neither base nor capital." He concluded as follows: "Some vestige of the tectonic also remains in the columns, first, because the eight-column grid is perceivable as a peristyle, despite the asymmetrical freestanding planes, and second, because the reiterated highlights on the profiles of the casing effect a reference to classical fluting."<sup>33</sup>

Frampton was searching for tectonic features in the Barcelona Pavilion from a Western classical point of view, using such terms as a peristyle and classical fluting. Regarding Frampton's criterion for distinguishing the tectonic from the atectonic, three questions are raised: Firstly, if architecture does not express the structure, is it atectonic? Then, if architecture expresses neither base nor capital, can it always be called abstract?

Finally, if architecture reminds viewers of traditional classic styles, can it be called tectonic? The distinction between the tectonic and the atectonic concept of Frampton, does not appear to be consistent. On the one hand, he applied structural logic, and on the other hand, he interpreted the object in terms of a classical style.

Before suggesting a different tectonic point of view from Frampton's concerning Mies' art of building, one should consider another view involving the "seamless connection" that addressed by Edward R. Ford: "Mies went to extraordinary lengths to erase the marks of joining in his work, particularly in the steel frame. Of course, Mies is well known for his work, particularly in the steel frame. Of course, Mies is well known for his use of the reveal (the notch at the joining of dissimilar materials); however, this occurs only at such locations as the joining of brick to steel; the joining of steel to steel is seamless and invisible."<sup>34</sup> The seamless connection would also be considered atectonic, if one interprets Mies' detailing in terms of the Jesús María Aparicio Guisado's definition of tectonics: "This type of construction is developed in a two-dimensional way and the resulting building is a discontinuous matter within the space. In this case the building present joints, which are the visible connection between the parts that make it up."<sup>35</sup> The concealed beam in the writing of Frampton, and the seamless connection in that of Ford appear atectonic and unclear from the structural point of view.

Actually, Mies manipulated joints not by covering them with molding but by making recessed notches between the joints of different materials or space relationships, which he called reveal. For Mies, the reveal follows a regular principle: he makes the reveal between the ceiling and the wall, between the structure and the infill, and between different materials on the same surface. From a constructional point of view, this reveal

not only visually articulates the connection but also induces cracks that would occur within this notched space due to deformation during a long period. It seems reasonable to make the reveal between different materials, the expansion rates of which are also different. In the case of joints between the same materials such as steel and steel, the architect could choose use a constructional joint method between the exposed fastener and the seamless welding only if he considered the proper tolerance of steel.

Mies concealed the joint between steel structural frames, as Ford indicates, so that he could give priority to the material linearity of steel itself over the visual connection of the structure. The steel frame was made into an extruded form as a linear element, so the materiality of steel is strongly extendable in contrast to the stereotomic, compressive material. Mies emphasized the straight materiality of steel:

Our steel beams, they have been born straight, haven't they? It takes a great deal of effort to bend them.<sup>36</sup>

Mies apparently did not want to have this straight, linear material articulated by conspicuously exposed joints. Mies, regarding steel as both a tectonic structure and a tectonic material for the art of framing construction attempted in his own refined way to reveal both qualities without expressing the existing tectonic logic of the joints. For Mies, the reveal was not intended to emphasize the joint itself but its overall materiality. The reveal took a recessed form between the two different kinds of material, which were clearly articulated while the same material on the same surface was seamlessly expressed with the minimum width of joints. By delicately detailing the reveal, Mies may have been revealing the material of steel itself in three-dimensional architectural space; in other words, it revealed its material tectonics--or the material art of framing construction--

rather than forms that express the idea of support or follow classical styles such as the peristyle and classical fluting.

Ignasi de Sola-Morales Rubio also understood Mies' preference for material art of building: "It makes no sense, then, to turn to Mies as the last classicist.... On the contrary, in the construction of a degree zero of the architectonic text the procedure is entirely different. Mies's work is developed, not out of images, but out of materials - materials in the strongest sense of the word, that is naturally, the matter from which objects are constructed."<sup>37</sup> Rubio explained Mies' work in terms of minimal art, which may replace the existing visual art with the physical sensuality of the "here-and-now."<sup>38</sup> His interpretation that regards Mies' work minimal may fall within the boundary of architectural tectonics, as the ontological aspect of minimal art has the idea of "place" in common with the field of architecture: "In short, with minimalism sculpture no longer stands apart, on a pedestal or as pure art, but is repositioned among objects and redefined in terms of place. In this transformation the viewer, refused the safe, sovereign space of formal art, is cast back on the here and now. . ."<sup>39</sup>

The commonality between minimalism and Mies' material art of building is a physical interface with real place and actual materiality. The minimalistic character of Mies' material art of building is distinguished from abstract art, in that Mies' material is naturally alive, though its form is abstract enough to remove past memories related to the natural form of material. The forms are sleekly distilled, but the materials preserve their natural character as evidenced in Mies' description of stony buildings: "what natural feeling they express!"<sup>40</sup> Gevork Hartoonian described the character of Mies' material as "the facticity of its material," although he did not link it to minimalism, saying that "the

continuous distillation of symbolic and representational content from the architectural object legitimizes the very process of abstraction. As a result of the design strategies, the wall and column acquire new meanings. In Miesian language, the wall is reduced to the facticity of its material. For instance, Mies's treatment of marble does not correspond to any denotative meaning that the material might have obtained in the history of modern architecture."<sup>41</sup>

Hartoonian referred to this process of abstraction as "demythification of construction," and its realization as "Mies's speechless art of construction."<sup>42</sup> He seemed to consider Mies' works within the boundary of tectonics as it etymologically signifies the art of construction. Mies' work through the abstract process remains silent in that "the silence [is] caused by the absence of any representational intention."<sup>43</sup> For Hartoonian, the process of abstraction may indicate that the existing meaning of classical architecture be abandoned in order to become "a degree zero of the architectonic" as Rubio described.

Rubio's and Hartoonian's points of view on Mies' material works focus on the minimal material itself rather than the abstract process, while Robin Evans understood the procedure of abstraction as a means to eliminate sensual properties, as evidenced in the following: "The effort to eliminate sensual properties makes one hypersensitive to their presence. That is why twentieth-century abstract painting has oscillated between glorification of the material surface and denial of it; between Pollock and Mondrian. But there are a large number of works, the Barcelona Pavilion among them, that belong to another class. They adopt the procedure of abstraction in order to reveal properties that are neither formal nor material. They do this by accentuating colour, luminosity, reflectiveness and absorption of light."<sup>44</sup>

Clearly, Mies' architecture is less rather than more. In order to become less, Mies' building must have gone through the procedure of abstraction. Thus, during the process of abstraction, something must have been eliminated--either sensual material properties or traditional memories. Evans argued that Mies' material was reduced to superficial properties without depth, such as "colour, luminosity, reflectiveness and absorption of light." Evans, representing Mies' architecture through abstract painting, rendered it a two-dimensional product undergoing an abstract process. However, he stayed too far from the tectonic essence of Mies, whose art of building, belongs to "building," not painting or design, as Mies' "building" and "design" are distinctive:

We do not like the word "design." It means everything and nothing. Many believe they can do everything, from designing a comb to planning a railroad station--the result is that nothing is good. We are only interested in building. We would rather than "architecture" use the word "building" and the best results would belong to the "art of building."<sup>45</sup>

Mies' material works based on the art of building possesses characteristics in common with minimal material art, which exposes a physical being three-dimensionally. Rubio described the Mies' material works as self-referential in contrast to monumental: He, referring to the words of Harold Rosenberg, defined the term monumental as pertaining to past works, social ideas, or individual emotions and the term self-referential as pertaining to the autonomous condition of the artistic object as significative in itself. Rubio regarded Mies' architecture as self-referential in that his architecture never "refers to, recalls, something outside itself, such as an event, a moment in history, the community, its origins, or certain civic or moral values."<sup>46</sup> Mies' minimal approach, opposite to the



monumental, reveals its own material presence, which goes through the abstract procedure of “the continuous distillation of symbolic and representational content” as Gevork Hartoonian described above.

One should distinguish the meaning of Mies’ term tectonic from the clear articulation of tectonic joints when Mies stated as follows:

Simplicity of construction, clarity of tectonic means, and purity of material shall be the bearers of a new beauty.<sup>47</sup>

In Mies’ description “the clarity of tectonic means,” clarity signified the consistency of his own principles applied to actual construction. Mies always used steel as a lightly framing material in the context of a tectonic structure, which is composed of light and linear framing elements. While his tectonics of steel accords with Semper’s tectonics, both of which regard steel as a tectonically linear material, Mies’ use of marble diverges from Semper’s material construction, as Mies used marble as a stereotomic material for the tectonic skin. In other words, Mies never adopted the stereotomically piling-up construction of marble. For Mies, marble formed skin, not structure despite its massive property. His principle of marble was to maintain its monolithic property and minimal seamlessness as a material that encrusts inner tectonic frames. Thus, this dissertation proposes that Mies’ minimal seamlessness of marble in his works from 1928 to 1930 was a precursor of minimalism that arose in the fine arts in the 1960s and revealed material ontology in actual space.

Although Mies’ principle of marble tectonics contradicts to the existing logic of tectonics that emphasized the clear expression of joints, his consistency of use of material and persistency towards its refinement by creating ordered details is evident, and they

form the essence of Miesian tectonics, keeping its own identity and logic. While abstract minimalism both in art and architecture suggests white minimal forms obscuring details, Mies' minimalism exposes its primordial materiality but preserves consistent traces in the seamless details that reveal "the clear lawfulness of a spiritual order"<sup>48</sup> which is Mies' expression.

#### **7.4 Mies' Space and Tectonics**

This chapter attempts to reveal Mies' spatial intention in his art of building by reexamining Mies' montages, because this dissertation finds that he clearly intended to show spatial unity (which the concluding part of Chapter 6 discussed) also in his montages. The publication of architectural concepts became universal after the immediate postwar period, when architects seldom received building commissions. Mies, also in the same situation, continued to publish his ideas of the art of building and building projects, by effectively using photomontages. According to Andres Lepik, Mies, allergic to writing, spoke concisely, so the representational montage of Mies was "not just as illustrations to the texts but as independent statements."<sup>49</sup> The dictionary definition of Montage, as a synonym of collage, states that it is "a paste-up made by sticking together pieces of paper or photographs to form an artistic image."<sup>50</sup> Montage is "the art or process of making such a composition"<sup>51</sup> two-dimensionally and fragmentarily so that it creates a flatly floating impression different from that of Mies' art of construction based on a spatially ordered process.

Some critics argue that the elements of Mies' actual buildings are also not contextually constructed but fragmentarily floating without any connection or hierarchy as those in his montage presentations. One critic, Alan Colquhoun, insisted that Mies was "more concerned with idealizing and mediating techniques of graphic representation than with construction. . . . Mies displays the materiality of his building elements, but he assembles these elements like montages; their connections are never visible. Even more than that of the other Modernists, Mies's work runs counter to the 'tectonic' tradition."<sup>52</sup> Judging from his argument above, Colquhoun, overlapping Mies' montages with his real buildings, seemed to define the term tectonic as pertaining to overall connections between the elements of a building. Although Mies' montages do not reveal manifest connections among the elements at first glance, Peter Blake advised using a "magnifying glass," to search for evidence that provided the overall relationship: ". . . for the only indication of any building whatsoever is a series of fine lines suggesting a few slender columns and the paving pattern of the floor."<sup>53</sup> According to Blake, Mies reduced his buildings to "almost nothing (Mies's phrase)" for the "highest possible degree of freedom"<sup>54</sup> in spatial usage and expression. The use of the term almost nothing does not actually mean nothing because Mies left his tectonic trace in the fine lines, which express cruciform columns in the detailing on the floor grids, for example, in the project for a Museum for a Small City of 1943 (Figure 6.8). Mies used "photographic reality,"<sup>55</sup> not drawings, in order to bring out the major elements of the montages to transmit the freshness of artistic works and their actual materiality. However, each element does not float; it is situated in the overall context of grid order, although the context is not strongly perceptible.

Beatriz Colomina also raised the issue of Mies' intentional manipulation of the photographic montage in his two-dimensional compositions, citing the photomontage of the Resor House (Figure 5.2) as evidence. She finally concluded that Mies' architecture itself was two-dimensionally organized: "‘what counts’ in Mies's buildings is not how they are really built, but what they ‘look like.’ What counts, then, is their image, their photographic image. . . ."<sup>56</sup> Colomina insisted on the apparent images of publicity, as she was tired of tectonic discussions related to Mies: " . . . what good architecture is: tectonics, precise building details, attention to material, and so on. The litany continues ad nauseam."<sup>57</sup> She argued that what made Mies's buildings an icon of modern architecture was that they engaged with the media in the form of reproductions and publicity because the original "Barcelona Pavilion was seen by nobody."<sup>58</sup> In her point of view, what Mies considered important was superficial appearance not actual tectonics. According to Colomina, the space in Mies' work was not confined by three-dimensional walls but by flat "frames for a view."<sup>59</sup> Hence, she seemed to treat Mies' built space as a superficial surface without depth of space.

While tectonic theory and practice seek the essence of buildings within the boundary of architectural making, postmodern theory may embrace areas outside this boundary such as publicity, in which Mies' personality was described as that of an ambitious man who threw up his humble origins and "wanted a first-class ticket"<sup>60</sup> by manipulating the image of himself and his work. Regardless of his personality, this tectonic study attempts to prove that Mies' art of building was not trite, or discussed "ad nauseam" but that it pioneered an innovative, spiritual approach within architectural making itself. The photomontage of the Resor House does not remain just a photo-image

but suggests a new vision in terms of the Miesian void (discussed in Chapter 6.3). In order to maximize the effect of artistic works on the inside or nature on the outside, Mies intended his architecture to be almost nothing. According to Peter Blake, this intention revealed a “self-effacing modesty.”<sup>61</sup>

Although the photomontage of the Resor House appears seemingly flat, tectonic-oriented minds based on the art of construction may understand that it represents a maximum effect created by artistic objects in three-dimensional space that minimize the architectural background. By observing the montage of the Resor House again in terms of a tectonic context, one can find clues such as window frames and cruciform columns with lines so weak that they look like almost nothing that Mies intentionally left. One can also recognize that nature exists outside the window, and Paul Klee’s “Colorful Meal” might be cheerfully situated against the background of nature at some distance in a three-dimensional way. The low wooden partition might be located for spatial functions, and the cruciform columns might be cased in chrome dissipating polished materiality. According to Lepik, montage was the favored medium for Berlin Dadaists around 1920s, when Mies also had a personal relationship with the Dada community. However, his montages “bear little relation to Dadaist thinking.”<sup>62</sup> Dadaist artists mainly used montage, which they newly produce by dissecting existing real images and then by rearranging them into ambiguous unities. For them, drawing is considered just a conventional technique, unimportant in their montage processes, while Mies’ montages depend on architectural drawing in order to “preserve an inner axial and spatial unity,”<sup>63</sup> as Lepik discussed.

Those who have visited the Barcelona Pavilion and the Tugendhat House may

comprehend what Mies intended to reveal through the montage of the Resor House, that is, his own Miesian tectonic atmosphere<sup>64</sup> as a whole because they holistically have experienced the art of built atmosphere based on framing construction. The dictionary term atmosphere derives from meteorology, signifying “the air or climate in a specific place,” or “the dominant tone or mood of a work of art.”<sup>65</sup> Thus, although photographic techniques used in architecture journals and books provide vivid images, only by visiting an architectural site can one truly experience its built atmosphere. In other words, architects know that by just viewing photographs of a building, one cannot achieve a full understanding of it, as such understanding entails a more profound experience than one created by an image. A thorough understanding involves many other factors such as climate, the intensity of the sun, the season, the humidity, the wind, the people within it, and sometimes, the specific sounds and smells of the building. Whether viewing the exterior or the interior of a building, the unity between the constructed building and its atmosphere seems to inspire one to recognize more profoundly what an architect intended to create. Therefore, experiencing the tectonic atmosphere of a building is essential to a thorough comprehension of architecture. Through photomontages, Mies may have intended to provide a more authentic experience of the atmosphere of a new building, one that lies beyond conceptual space.

According to Gernot Böhme, the notion of atmosphere in architecture “concerns a spatial sense of ambience,” represented by synonyms such as “nimbus, aura, fluid” and “spatial phenomena.”<sup>66</sup> He argued that atmosphere is regarded as “characteristic manifestations of the co-presence of subject and object,”<sup>67</sup> as it occurs when a person is exposed to objective ambience and emotionally affected by it. In this sense, atmosphere

belongs to phenomenology. According to Noberg-Schulz, “A phenomenological attitude takes the unity of subject and object as its point of departure, or in other words understands man as being-in-the-world.”<sup>68</sup> In architectural phenomenology, Schulz focused on place as a particular identity of space on the basis of Heidegger’s concept of the poetic and dwelling. On the other hand, Juhani Pallasmaa emphasized the idea of “a looking at”:

Phenomenology thus means examining the phenomenon of consciousness in its own dimension of consciousness. That, using Husserl’s concept, means “pure looking at” the phenomenon, or “viewing its essence.” Phenomenology is a purely theoretical approach to research in the original sense of the Greek word *theoria*, which means precisely “a looking at.” The phenomenology of architecture is thus “looking at” architecture from within the consciousness [of] experiencing it, through architectural feeling in contrast to analysis of the physical proportions and properties of the building or a stylistic frame of reference.<sup>69</sup>

The concept of a “looking at” in phenomenology may be distinguished from that of tectonic atmosphere, which is based on the idea of physical making as well as the ontological appreciation of a certain construct in a place. Although tectonic atmosphere focuses attention on “locality and physical presence”<sup>70</sup> as phenomenology does, experiencing a place is not the whole of tectonic atmosphere: In a tectonic atmosphere, one holistically perceives the architectural intention by simultaneously comprehending the detailed manipulation of construction. In that sense, the concept of tectonic atmosphere is balanced midway between a physical reality of constructing a building and a metaphysical consciousness of experiencing it. As Mark Wigley argued, “atmosphere

seems to start precisely where the construction stops.”<sup>71</sup> That is, the tectonic atmosphere is neither only theoretical like phenomenology nor only physical like practical construction.

Mies, also distinguishing his art of building from simple building,<sup>72</sup> and poetic from prosaic architecture,<sup>73</sup> attempted to pursue architecture that revealed spiritual atmosphere of industrialized culture. In one lecture he stated as follows:

One realm concerns building for life in a general sense, the other is intimately connected with specific spiritual atmospheres that we perceive as characteristic cultures.<sup>74</sup>

Mies knew that “certain technical requirements lead to new forms with powerful expressive qualities,” but warned people that “one must not confuse this with spiritual expression.”<sup>75</sup> Therefore, the Greek concept *techné* does not correspond to Mies’ art of building, as the premise of his art of building includes aspects of industrialization, in which the process of construction is divided, and thus, individual craftsmanship is impractical. However, since technology does not satisfy the spiritual integrity of construction, Mies always maintained an ambivalent and seemingly contradictory attitude toward his art of building as “a science that is more spiritual.”<sup>76</sup> (Chapter 6.1 defined and discussed Mies’ term spiritual).

Mies publicly referred to his ambiguous theory of architecture as the art of building, in which art (*Kunst*) is concerned with “sense of a know-how,” and building implies technical construction. In his words, “construction has to be the basis of the building art.”<sup>77</sup> As one learned from Chapter 2.1 that the term tectonics etymologically signifies the art of framing construction, the art of building of Mies can be considered



tectonics. More clearly, Mies' art of building was intended to create tectonic atmosphere that revealed new spatial unity among unnoticeable architectural frames, vivid artifacts, and the outside view beyond external glass skin. Gevork Hartoonian described the characteristics of Mies' collage drawings and the Barcelona Pavilion as revealing two distinct aspects<sup>78</sup>: Each element is experienced as "a self-contained spatial construct" in the "absence of any spatial hierarchy," like the components of montage, so that inner space defies the holistic vision of the Western classical part-whole relationship. Mies' intention to eliminate the strongly oppressive effect of space led to the creation of a background unnoticeable architectural frames that rendered artistic objects and Mies' ornamental freestanding walls more animated in a non-hierarchical context. Through this approach, he suggested a new vision of tectonic atmosphere in which tectonic enclosures become unnoticeable frames and the void space enclosed with them possessed changing potential. Mies, emphasizing "a framework for living," explained its meaning as follows:

I want people to be able to develop their own tastes and interests unhampered by the architecture. My buildings are extremely carefully designed to be suitable for use--the most careful attention is given to this, but of course the people who use the buildings don't notice it--they would soon notice it if they were badly planned.<sup>79</sup>

By expressing his architecture as fine lines in montages, Mies attempted to create a new approach towards atmospheric unity in which fragmentary artistic elements are vividly stressed and the tectonic frame is designed in a barely noticeable but extremely careful way: this dissertation refers to the extremely self-effacing art of framed buildings, through which Mies intended to create atmospheric unity, as Miesian spatial tectonics.

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- <sup>1</sup> Eduard F. Sekler, "Structure, Construction, and Tectonics," in *Structure in Art and in Science*, ed. Gyorgy Kepes (New York: George Braziller, 1965), 89.
- "When a structural concept has found its implementation through construction, the visual result will affect us through certain expressive qualities which clearly have something to do with the play of forces and corresponding arrangement of parts in the building, yet cannot be described in terms of construction and structure alone. For these qualities, which are expressive of a relation of form to force, the term tectonic should be reserved."
- <sup>2</sup> Op. cit. 93.
- <sup>3</sup> Op. cit. 94.
- <sup>4</sup> Ibid.
- <sup>5</sup> Mies van der Rohe, "Lecture" (date unknown). Published by Fritz Neumeyer, 325.
- <sup>6</sup> Demetri Porphyrios, "From techne to Tectonics," in *What is Architecture?* ed. Andrew Ballantyne (London, New York: Routledge, 2002), 136.
- <sup>7</sup> Ibid.
- <sup>8</sup> Mies van der Rohe, "The Preconditions of Architectural Work" (Lecture in 1928). Published by Fritz Neumeyer, 300.
- <sup>9</sup> Mies van der Rohe, "The New Time," *Die Form* 5, no.15 (1930): 406. Republished by Fritz Neumeyer, 309.
- <sup>10</sup> Mies van der Rohe, "The Preconditions of Architectural Work" (Lecture in 1928). Published by Fritz Neumeyer, 301.
- <sup>11</sup> Tom F. Peters, "Technological Thought is Design's Operative Method," *Perspecta* 31 (2001): 121. Tom F. Peters divides the term "system" into two concepts such as hierarchical systems and layered systems.
- <sup>12</sup> Mies van der Rohe, "Notes to Lectures" (date unknown: around 1950). Published by Fritz Neumeyer, 328.
- <sup>13</sup> Peter Carter, *Mies van der Rohe at Work* (New York: The Pall Mall Press, 1974), 46-48.
- <sup>14</sup> Detlef Mertins, "Mies's skyscraper 'project': toward the redemption of technical structure," in *The Presence of Mies* (New York: Princeton Architectural Press, 1994), 66. Mertins argued that "Mies rendered visible the material conditions of technology, industry, and labor by rewriting or reworking them and making of them an 'ornamental' pattern that would redeem technical structure by transforming the calculus of means and ends into the evocation of an end in itself."
- <sup>15</sup> Peter Davey, "Democratising the Tectonic," *Architectural Review* 202 (October 1997): 4-5.
- <sup>16</sup> Mies van der Rohe, "Principles of Architectural Education," in *Mies van der Rohe: The Art of Structure* by Werner Blaser (New York: Thames and Hudson, 1965), 52.
- <sup>17</sup> Mies van der Rohe, "Inaugural Address as Director of Architecture at Armour Institute of Technology"(1938), in *Mies van der Rohe* by Philip Johnson (New York: The Museum of Modern Art, 1947), 194.
- <sup>18</sup> Adolf Behne, "Art, Handicraft, Technology" (1922). Republished in "The Remoteness of die Moderne," by Francesco Dal Co., trans. Diane Blaurock, republished

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- Oppositions* 22 (Fall 1980): 97.
- <sup>19</sup> Mies van der Rohe, "The New Time," *Die Form* 5, no.15 (1930): 406. Republished by Fritz Neumeyer, 309.
- <sup>20</sup> Mies van der Rohe, "Principles for Education in the Building Art," published in Werner Blaser, *Mies van der Rohe* (1965), 52.
- <sup>21</sup> Edward R. Ford, *The Details of Modern Architecture* (Cambridge: MIT Press, 1990), 7.
- <sup>22</sup> Op. cit. 265.
- <sup>23</sup> Op. cit. 273.
- <sup>24</sup> Juhani Pallasmaa, "The Geometry of Feeling: A Look at the Phenomenology of Architecture," (1986). Republished in *Theorizing a New Agenda for Architecture* ed. Kate Nesbitt (New York: Princeton Architecture Press, 1996), 453.
- <sup>25</sup> Juhani Pallasmaa, 449.
- <sup>26</sup> Vittorio Gregotti, "The Obsession with History," *Casabella* 478 (March 1982): 41.
- <sup>27</sup> Vittorio Gregotti, *Inside Architecture* (Cambridge: The MIT press, 1996), 56.
- <sup>28</sup> Christian Norberg-Schulz: "A talk with Mies van der Rohe" (1958). Republished by Fritz Neumeyer, 338-339.
- <sup>29</sup> Mies van der Rohe, "Lecture" (date unknown). Published by Fritz Neumeyer, 224-225.
- <sup>30</sup> In 1923, Mies states that, "Building art is the spatially apprehended will of the epoch." Mies van der Rohe, "Office Building," *G*, no.1 (July 1923): 3. Republished by Fritz Neumeyer, 241. In 1924, Mies argues that, "Building art as spatial expression is spiritually connected to its times." Mies van der Rohe, "Lecture," unpublished manuscript of 1924. Published by Fritz Neumeyer, 249.
- <sup>31</sup> Kenneth Frampton, *Studies in Tectonic Culture: the Poetics of Construction in Nineteenth and Twentieth Century Architecture* (Cambridge: The MIT Press, 1995), 5.
- <sup>32</sup> Op. cit. 177.
- <sup>33</sup> Op. cit. 178.
- <sup>34</sup> Edward R. Ford, *The Details of Modern Architecture*, 267.
- <sup>35</sup> Jesús María Aparicio Guisado, "The Dematerialization of the Wall, an Evolution of Tectonic," *Arquitectura* 310 (1997): 117.
- <sup>36</sup> Mies van der Rohe, "Mies Speaks: I Do Not Design Buildings. I Develop Buildings," *Architectural Review* 145 (Dec. 1968): 452.
- <sup>37</sup> Ignasi de Sola-Morales Rubio, "Mies van der Rohe and Minimalism," in *The Presence of Mies*, ed. Detlef Mertins (New York: Princeton Architectural Press, 1994), 151.
- <sup>38</sup> Hal Foster, "The Crux of Minimalism," in *The Return of the Real*, (The MIT Press, 1996), 62.
- <sup>39</sup> Op. cit., 38.
- <sup>40</sup> Mies van der Rohe, "Inaugural Address as Director of Architecture at Armour Institute of Technology"(1938), in *Mies van der Rohe* by Philip Johnson (New York: The Museum of Modern Art, 1947), 193.
- <sup>41</sup> Gevork Hartoonian, *Ontology of Construction - On Nihilism of Technology in Theories of Modern Architecture* (Cambridge: Cambridge University Press, 1994), 75-76.
- <sup>42</sup> Op. cit., 68.
- <sup>43</sup> Op. cit., 72.
- <sup>44</sup> Robin Evans, "Mies van der Rohe's Paradoxical Symmetries," *AA files* 19(Spring

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- 1990): 62-63.
- <sup>45</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100.
- <sup>46</sup> Ignasi de Sola-Morales Rubio, 153.
- <sup>47</sup> Mies van der Rohe, "What Would Concrete, What would Steel Be without Mirror Glass?" (Manuscript, 1933). Republished by Fritz Neumeyer, 314.
- <sup>48</sup> Mies van der Rohe, "Inaugural Address as Director of Architecture at Armour Institute of Technology"(1938), in *Mies van der Rohe* by Philip Johnson (New York: The Museum of Modern Art, 1947), 193.
- <sup>49</sup> Andres Lepik, "Mies and Photomontage, 1910-1938," in *Mies in Berlin* eds. Terence Riley and Barry Bergdoll (New York: the Museum of Modern Art, 2001), 325.
- <sup>50</sup> *WordNet* ® 2.0, (Princeton University, 2003)
- <sup>51</sup> *The American Heritage* ® *Dictionary of the English Language*, (Houghton Mifflin Company, 2000), Fourth Edition.
- <sup>52</sup> Alan Colquhoun, "Mies van der Rohe and the Spiritualization of Technique," *Modern Architecture* (Oxford: OUP, 2002), 179.
- <sup>53</sup> Peter Blake, *Mies van der Rohe, Architecture and Structure* (Baltimore: Penguin Books, 1960), 87.
- <sup>54</sup> Op. cit. 86.
- <sup>55</sup> Andres Lepik, 325.
- <sup>56</sup> Beatriz Colomina, "Mies Not," in *The Presence of Mies*, ed. Detlef Mertins (New York: Princeton Architectural Press, 1994), 213.
- <sup>57</sup> Op. cit. 202
- <sup>58</sup> Op. cit. 208
- <sup>59</sup> Op. cit. 214
- <sup>60</sup> Op. cit. 203
- <sup>61</sup> Peter Blake, 87.
- <sup>62</sup> Andres Lepik, 327.
- <sup>63</sup> Ibid.
- <sup>64</sup> "Tectonic atmosphere" is the author's term.
- <sup>65</sup> *The American Heritage* ® *Dictionary of the English Language*, (Houghton Mifflin Company, 2000), Fourth Edition.
- <sup>66</sup> Gernot Böhme, "Atmosphere as an Aesthetic Concept," *Daidalos* 68 (June 1998): 112.
- <sup>67</sup> Op. cit. 114.
- <sup>68</sup> Christian Norberg-Schulz, *Principles of Modern Architecture* (London: Andreas Papadakis Publisher, 2000), 123.
- <sup>69</sup> Juhani Pallasmaa, "The Geometry of Feeling: A Look at the Phenomenology of Architecture," (1986) in *Theorizing a New Agenda for Architecture*, 450.
- <sup>70</sup> Gernot Böhme, 112.
- <sup>71</sup> Mark Wigley, "The Architecture of Atmosphere," *Daidalos* 68 (June 1998): 18.
- <sup>72</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100. Mies stated as follows: "We are only interested in building. We would rather than 'architecture' use the word 'building' and the best results would belong to the 'art of

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building’.”

<sup>73</sup> Mies van der Rohe, in “Ludwig Mies van der Rohe: 1886-1969,” by Water F. Wagner, Jr., *Architectural Record* 146 (Sept. 1969): 9. See appendix A.4.

<sup>74</sup> Mies van der Rohe, “Lecture” (Unpublished manuscript, 1926). Published by Fritz Neumeyer, 253.

<sup>75</sup> Op. cit. 255.

<sup>76</sup> Mies van der Rohe, “The Preconditions of Architectural Work” (Lecture, 1926). Published by Fritz Neumeyer, 301.

<sup>77</sup> Mies van der Rohe, Notes to Lectures, undated (around 1950). Published by Fritz Neumeyer, 327.

<sup>78</sup> Gevork Hartoonian, *Ontology of Construction - On Nihilism of Technology in Theories of Modern Architecture* (Cambridge: Cambridge University Press, 1994), 79.

<sup>79</sup> Mies van der Rohe, Interview by Ronald Lewcock, “Conversation between Ludwig Mies van der Rohe and Ronald Lewcock” (1964), Manuscript.

## CHAPTER 8

### CONCLUSION

This dissertation attempted to interpret Ludwig Mies van der Rohe's lifelong theory of *Baukunst*, or the art of building. In order to use the notion of tectonics as a criterion for the interpretation of Mies' art of building, this study categorized existing definitions of tectonics within the architectural area. Architectural tectonics was closely related to the following terms in three categories: 1. *Techne*, technique, and technology; 2. construction and structure; and 3. stereotomics. Based on its etymology, system, and material construct, the notion of tectonics common in these three categories signifies "the art of framing construction," in which linear elements are connected with joints and clad or infilled with lightweight material. This study found that this definition corresponded to Mies' term "the art of building" with regard to two aspects: first, that the art of building, as he argued, should be based on construction; and second, that tectonic materials such as concrete, iron, and glass, should be consistently used as the materials of "skin and bone structures, which he stated publicly in 1923.

Based on a chronological, comparative study of Mies' statements on the art of building and his buildings or projects, this research found first, that Mies attempted to embody his art of building, a theory, in an actual construct, and second, that his keynote on the art of building evolved from exterior forms of structure to minimal seamless frames containing clear space. This dissertation reveals that Mies' identity as a modern

master lies in his accomplishment of a new proto-form of tectonics: his realization of minimal “almost nothing” framing architecture containing potential clear space. In addition, it provides evidence that Mies experienced not merely the critical awareness, his vision of the open plan, which he described in 1926, but at least one other awareness concerning space in his buildings, which all the evidence suggests occurred after 1930. Between these two periods, this study characterizes his various renditions of the open plan as so-called “flowing space,” “dynamic space,” and “clear space.” After 1930, Mies’ flowing space disappeared, and his dynamic space weakened. Then, he created his clear space, which had originated from “skin and bone” structures in 1923 and developed consciously into open plans, the space of which extended to the nature outside after 1930. On the basis of the observation of Mies’ spatial concerns between pre- and post-1930, it is proposed that the association of clear space with changing nature outside glazed walls originated (perhaps as a result of his acquaintance with Karlfried Graf Dürckheim, a colleague at the Bauhaus) with his discovery of Lao-tzu’s philosophy of the void and its value, from which he derived profound spatial meaning.

Mies’ clear space is dramatically clear from both the inside and the outside. In his designs, he maximally allowed potential emptiness, which is generally referred to as the void in Far Eastern countries. This dissertation has proposed that Mies applied Lao-tzu’s voids to his clear space in his own way, citing evidence of a progressive development of his statements of space to a point at which he intentionally emphasized the potential force of changing nature. Mies previously anticipated the final spatial situation of his framing architecture with foresight in which he accepted the potential effect of changing nature as one of the most influential elements of interior space. For potential space, he created

“almost nothing,” self-effacing tectonics. This dissertation proposes that it was based on Lao-tzu’s voids that Mies’ minimal seamlessness of his framing architecture was expounded. Mies realized an integrated combination of architectural space and form by encompassing inexhaustibly changing nature within minimally neutral frames.

This dissertation has attempted to show how Mies’ art of building, embodied as a framing construct, led to the establishment of his identity as an architect of extroverted clear space. Thus, Mies’ design intentions were beyond the innovative technology of structure and evolved towards an ideal form of space. This point of view recognizes that Mies was completely devoted to creating the larger whole. In terms of tectonics, defined as the art of framing construction, Mies finally achieved a tectonically integrated body of a building that contained potentially extroverted and maximally undetermined space, which he referred to as clear space, or, as it is generally called “Mies’ universal space,” through his lifelong pursuit for the accomplishment of his own art of building, which this dissertation terms “Miesian tectonics.” As a modern master of tectonics, Mies succeeded in establishing his own organic order and detailing it in terms of structure. At the same time, he maintained material seamlessness and minimalism in terms of material and created atmospheric unity by producing self-effacing architecture in terms of space.

This dissertation has investigated the nature of Mies’ “art of building” and his approach to tectonics, and how the latter became inextricably linked to his growing awareness of the potentialities of space as a focus of expressiveness in framing buildings and how both ultimately led to the possibility of a conscious dimension that extended beyond material construction into tectonic space. Although this research has identified considerable circumstantial evidence, including his possession of several books written



by Lao-tzu, that Mies may have been well aware of Lao-tzu's philosophy and adapted it to his clear spaces, it was not able to uncover any public statements of Mies himself confirming this influence. While Far Eastern architects universally find the Eastern sentiment of space in Mies' architecture, this dissertation is the first academic endeavor that posits the existence of the void in the architectural pursuits of Mies. Thus, this dissertation provides existing discourse on Mies with a new interpretation based on an Eastern approach to architectural thinking.

## APPENDIX A

### MIES' STATEMENTS

#### A.1 Mies' Statements Cited in Chapter 3

It is our specific concern to liberate building activity [*Bauerei*] from aesthetic speculators and make building [*Bauen*] again what alone it should be, namely BAUEN (1923).<sup>1</sup>

Any aesthetic speculation

any doctrine                      } we reject

and any formalism

Building art is the spatially apprehended will of the epoch.

Alive. Changing. New.

Not the yesterday, not the tomorrow, only the today is formable.

Only this building creates.

Create form out of the nature of the task with the means of our time.

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<sup>1</sup> Mies van der Rohe, "Building," *G*, no.2 (September 1923):1. Republished by Fritz Neumeyer, *The Artless Word: Mies van der Rohe on the Building Art*, trans., Mark Jarzombek (Cambridge: The MIT Press, 1991), 242.

That is our work (1923).<sup>2</sup>

Supporting girder construction with a nonsupporting wall. That means skin and bone structures. The most practical distribution of the work stations determined room depth; it is 16m. A double-shafted frame of 8m span-wide with 4m long lateral cantilever brackets on either side was established as the most economical construction principle. (1923)<sup>3</sup>

The art technical journals that were formerly focal points for artistic life have, due to their purely aesthetic viewpoints, failed to take note [of it –crossed out] of the development of the modern building art away from the aesthetic to the organic, from the formal to the constructive. The modern building art has, for a long time, refused to play a mere decorative role in our life. The creative building artists want to have nothing, nothing whatever, to do with the aesthetic traditions of past centuries. We leave this field without regret to the art historians. Their [the building artist's] work shall serve life. Life alone shall be their teacher . . . The character of our time must be conveyed by our building. We want to shape the form of our buildings out of the nature of the task, but with the means of our time (1923).<sup>4</sup>

To help you look beyond the historical and aesthetic junk heaps of Europe to the elementary and purposeful, I have assembled illustrations of buildings that lie outside the

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<sup>2</sup> Mies van der Rohe, "Office Building," *G*, no.1 (July 1923): 3. Republished by Fritz Neumeyer, 241.

<sup>3</sup> Ibid.

<sup>4</sup> Mies van der Rohe, "Office Building," Manuscript (August 1923). Published by Fritz Neumeyer, 241.

realm of the Greco-Roman culture. I have done this on purpose, because to me an axe stroke in Hildesheim is closer than a chisel stroke in Athens. I will now show you dwellings clearly formed in response to need and material (1923).<sup>5</sup>

I hold that the industrialization of building constitutes the core problem of our time. If we are successful in carrying out this industrialization, then the social, economic, technical, and even artistic questions will solve themselves. . . . As long as we use essentially the same materials, we will not change the character of building, and this character, as I have already pointed out, determines the method of construction. The industrialization of building trades is a matter of materials. That is why the demand for new building materials is the first prerequisite. Technology must and will succeed in finding a building material that can be produced technologically, that can be processed industrially, that is firm, weather-resistant, and sound and temperature insulating. It will have to be a lightweight material, the processing of which not only permits but actually demands industrialization. The industrial production of all parts can only be carried out systematically by factory processes, and the work on the building site will then be exclusively of an assembly type, bringing about an incredible reduction of building time. This will bring with it a significant reduction of building costs (1924).<sup>6</sup>

The purpose of a building is its actual meaning. The buildings of all epochs served purposes, and quite real ones. These purposes were, however, different in type and

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<sup>5</sup> Mies van der Rohe, "Solved Tasks: A Challenge for Our Building Industry," *Die Bauwelt* 14, no.52 (1923): 719. Republished by Fritz Neumeyer, 243-245.

<sup>6</sup> Mies van der Rohe, "Industrial Building," *G* no.3 (1924): 8-13. Republished by Fritz Neumeyer, 248-249.

character. The purpose was always decisive for the building. It determined the sacred or profane form (1924).<sup>7</sup>

Mechanization can never be [a] goal, it must remain means. Means toward a spiritual purpose. While we want to stand with both feet firmly on the ground, we want to reach with our head to the clouds (1924).<sup>8</sup>

Building art as spatial expression is spiritually connected to its times (1924).<sup>9</sup>

For only where the building art leans on the material forces of a period can it bring about the spatial execution of its spiritual decisions (1927).<sup>10</sup>

The organizational problem cannot be solved without the cooperation of the building trades. This was completely impossible in Stuttgart as we had no authority over the letting-out contracts. This also deprived us of exercising control over the quality of execution. We were really independent only in regard to spatial problems, which means questions in respect to the actual building art (1927).<sup>11</sup>

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<sup>7</sup> Mies van der Rohe, "Building Art and the Will of the Epoch," manuscript (1924). Published by Fritz Neumeyer, 246.

<sup>8</sup> Mies van der Rohe, Unpublished manuscript of 1924. Published by Fritz Neumeyer, 250.

<sup>9</sup> Mies van der Rohe, "Lecture" (An unpublished manuscript of 1924). Published by Fritz Neumeyer, 250.

<sup>10</sup> Mies van der Rohe, Unpublished manuscript of 1927. Published by Fritz Neumeyer (1991), 262.

<sup>11</sup> Mies van der Rohe, "Introductory Remarks to the Special Issue, 'Werkbundaussstellung: Die Wohnung'," *Die Form* 2, no.9 (1927): 257. Republished by Fritz Neumeyer, 261.

Next to them, or rather above them, stands the spatial problem that can only be solved by creativity rather than calculation or organization (1927).<sup>12</sup>

I therefore suggest to you making the skin of your building of glass and stainless steel, with the bottom floor of transparent glass, the others of opaque glass. Walls of opaque glass give the rooms a wonderfully mild but bright and even illumination. In the evening it represents a powerful body of light and you have no difficulties in affixing advertising (1928).<sup>13</sup>

The variability you want is best by an undivided expanse of the individual floor levels; for that reason I have placed the supports in the exterior walls (1928).<sup>14</sup>

You need layered floor levels with clear, uncluttered spaces. Furthermore you need much light. You need publicity and more publicity. (1928).<sup>15</sup>

The glass skin, the glass walls alone permit the skeleton structure its unambiguous constructive appearance and secure its architectonic possibilities. Nor only in the large functional structures. (1933).<sup>16</sup>

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<sup>12</sup> Ibid.

<sup>13</sup> Mies van der Rohe, Draft of a letter on the project for the Adam Building (1928). Published by Fritz Neumeyer, 305

<sup>14</sup> Ibid.

<sup>15</sup> Ibid.

<sup>16</sup> Mies van der Rohe, "What Would Concrete, What Would Steel Be without Mirror Glass?," Manuscript of 1933. Published by Fritz Neumeyer, 314.

Toward the river the house is entirely open and melts into the landscape. Thereby I not only entered in the situation but obtained a beautiful alternation of quiet seclusion and open spaces. (1935).<sup>17</sup>

I chose an intensive rather than an extensive form to express my conception, simply and honestly, of what a sacred building should be. By that I mean a church or chapel should identify itself, rather than rely upon the spiritual associations of a traditional fashion in architecture, such as the Gothic. . . . Architecture should be concerned with the epoch, not the day. The chapel will not grow old . . . [original abbreviation] it is of noble character, constructed of good materials, and has beautiful proportions . . . [original abbreviation] it is done as things should be done today, taking advantage of our technological means. The men who did the Gothic churches achieved the best they could with their means (1953).<sup>18</sup>

We are only interested in building. We would rather than “architecture” use the word “building” and the best results would belong to the “art of building” (1958).<sup>19</sup>

We explicitly say clear structure because we want a regular construction which can be adapted to the present-day demand for standardization (1958).<sup>20</sup>

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<sup>17</sup> Mies van der Rohe, “The H. House, Magdeburg,” *Die Schilgenossen* 14, no.6 (1935).  
Republished by Fritz Neumeyer, 314.

<sup>18</sup> Mies van der Rohe, “A Chapel: Robert F. Carr Memorial Chapel of St. Saviour, Illinois Institute of Technology,” *Arts and Architecture* 70, no.1 (1953): 18-19.

<sup>19</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, “Talks with Mies van der Rohe,” *L’Architecture d’aujourd’hui* 79 (September 1958):100.

<sup>20</sup> Ibid.

Yes, the structure is the backbone of the whole and makes the free plan possible. Without that backbone, the plan would not be free, but chaotic and therefore constipated (1958).<sup>21</sup>

It is very difficult to stick to this fundamental construction, and then elevate it into a structure. I must make it clear that in the English language you can call everything structure. In Europe we don't. We call a shack a shack and not a structure. By structure we have a philosophical idea. The structure is the whole, from top to bottom, to the last detail—with the same ideas. That is what we call structure (1961).<sup>22</sup>

Architecture is a language having the discipline of a grammar. Language can be used for normal day-to-day purposes as prose. And if you are very good at that you may speak a wonderful prose. And if you are really good you can be a poet (1969).<sup>23</sup>

## **A.2 Mies' Statements Cited in Chapter 4**

Only skyscrapers under construction reveal the bold constructive thoughts, and then the impression of the high-reaching steel skeletons is overpowering. With the raising of the walls, this impression is completely destroyed; the constructive thought, the necessary basis for artistic form-giving, is annihilated and frequently smothered by a meaningless

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<sup>21</sup> Ibid.

<sup>22</sup> Mies van der Rohe, in Peter Carter, "Mies van der Rohe: An Appreciation on the Occasion, This Month, of His 75th Birthday," *Architectural Design* 31, no.3 (Mar. 1961): 97.

<sup>23</sup> Mies van der Rohe, in Water F. Wagner, Jr., "Ludwig Mies van der Rohe: 1886-1969," *Architectural Record*, no.146 (Sept. 1969): 9.



and trivial jumble of forms (1922).<sup>24</sup>

My experiments with a glass model helped me along the way and I soon recognized that by employing glass, it is not an effect of light and shadow one wants to achieve but a rich interplay of light reflections. That is what I strove for in the other design published here. At first glance the contour of the ground plan appears arbitrary, but in reality it is the result of many experiments on the glass model. The curves were determined by the need to illuminate the interior, the effect of the building mass in the urban context, and finally the play of the desired light reflection (1922).<sup>25</sup>

Ferroconcrete buildings are essentially skeleton structures. Neither pastry nor tank turrets. Supporting girder construction with a nonsupporting wall. That means skin and bone structures (1923).<sup>26</sup>

It is our specific concern to liberate building activity [*Bauerei*] from aesthetic speculators and make building [*Bauen*] again what alone it should be, namely BAUEN (1923).<sup>27</sup>

Questions of a general nature are of central interest. The individual becomes less and less important; his fate no longer interests us. The decisive achievements in all fields are

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<sup>24</sup> Mies van der Rohe, "Skyscrapers," published in without title in *Frühlicht* 1, no.4 (1922): 122-124. Republished by Fritz Neumeyer, 240.

<sup>25</sup> Ibid.

<sup>26</sup> Mies van der Rohe, "Office Building," *G*, no.1 (July 1923): 3. Republished by Fritz Neumeyer, 241.

<sup>27</sup> Mies van der Rohe, "Building," *G*, no.2 (September 1923): 1. Republished by Fritz Neumeyer, 242.

objective in nature and their originators are for the most part unknown. It is here that the great anonymous trait of our time comes into view. Our engineering buildings are typical examples. Gigantic dams, large industrial complexes, and important bridges arise with great natural ease without their builders becoming known. These structures show also the technical means we will have to employ in the future (1924).<sup>28</sup>

For only where the building art leans on the material forces of a period can it bring about the spatial execution of its spiritual decisions. But that is its actual meaning and it has never been otherwise (1927).<sup>29</sup>

I therefore suggest to you making the skin of your building of glass and stainless steel, with the bottom floor of transparent glass, the others of opaque glass. Walls of opaque glass give the rooms a wonderfully mild but bright and even illumination. In the evening it represents a powerful body of light and you have no difficulties in affixing advertising (1928).<sup>30</sup>

I say that it [others' copying my buildings] is not a problem to me. I think that is the reason we are working, that we find something everybody can use. We hope only that he

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<sup>28</sup> Mies van der Rohe, "Building Art and the Will of the Epoch!," *Der Querschnitt* 4, no.1 (1924): 31-32. Republished by Fritz Neumeyer, 245-246.

<sup>29</sup> Mies van der Rohe, Unpublished manuscript of 1927. Published by Fritz Neumeyer, 262.

<sup>30</sup> Mies van der Rohe, "The Adam Building," (Draft of a letter of 1928). Published by Fritz Neumeyer, 305.

uses it right (1955).<sup>31</sup>

I do that on purpose and have done it all my life. I do it when I am interested in something. I do it just to hope that one day the building will be lived in and liked (1959).<sup>32</sup>

I am, in fact, completely opposed to the idea that a specific building should have an individual character – rather, a universal character which has been determined by the total problem which architecture must strive solve . . . My concept and approach to [designing] the Seagram building was no different from any other building that I might build. My idea, or better, direction, in which I go is toward a clear structure and construction – this applies not to any problem but to all architectural problem which I approach (1960).<sup>33</sup>

I think that this [steel] is a fine material. By fine, I mean it is very strong. It is very elegant. You can do a lot with it. The whole character of the building is very light. That is why I like it when I have to build a building in a steel construction (1964).<sup>34</sup>

In painting you can express the slightest emotion, but with a beam of wood or a piece of stone you cannot do much about it. If you try to do much about it, then you lose the

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<sup>31</sup> Mies van der Rohe, interview (1955) by John Peter, in *The Oral History of Modern Architecture: Interviews with the Greatest Architects of the Twentieth Century* (New York: H.N. Abrams, 1994), 160.

<sup>32</sup> Ludwig Mies van der Rohe, “No Dogma,” *Interbuild* 6 (June 1959): 10.

<sup>33</sup> Mies van der Rohe, Letter to Messrs. Cameon Alread et al., Manuscript (1960), in Phyllis Lambert, “Space and Structure,” *Mies in America* (New York: Whitney Museum of American Art, 2001), 391.

<sup>34</sup> Mies van der Rohe, interview (1964) by John Peter, 167.

character of your material. I think architecture is an objective art (1964).<sup>35</sup>

I was interested in structural architecture, I was interested in Romanesque, I was interested in Gothic architecture. They are often misunderstood. You know, the profiles of a pillar in a cathedral, that is still a very clear structure. The refinements were to make it clear, not to decorate it, but to make it clearer (1964).<sup>36</sup>

People say that concrete, because it is a plastic material, is a material that can be used for anything, but that isn't true. If you want clear structure, you must use concrete with clarity too (1968).<sup>37</sup>

### **A.3 Mies' Statements Cited in Chapter 5**

How sensible is this small handy shape, so useful for every purpose! What logic in its bonding, pattern, and texture! What richness in the simplest wall surface! But what discipline this material imposes! (1938)<sup>38</sup>

One evening as I was working late on the building I made a sketch of a freestanding wall,

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<sup>35</sup> Mies van der Rohe, Interview (1964) by John Peter, 163.

<sup>36</sup> Mies van der Rohe, Interview (1964) by John Peter, 165.

<sup>37</sup> Mies van der Rohe, "Mies Speaks: I Do Not Design Buildings. I Develop Buildings," *Architectural Review* 145 (Dec. 1968): 452.

<sup>38</sup> Mies van der Rohe, "Inaugural Address as Director of Architecture at Armour Institute of Technology" (1938), in *Mies van der Rohe* by Philip Johnson (New York: The Museum of Modern Art, 1947), 193.

and I got a shock. I knew it was a new principle (1952).<sup>39</sup>

The free plan is a new concept and has its own grammar, like a new language. Many believe that the free plan means absolute liberty. That is a misunderstanding. The free plan asks for just as much discipline and understanding from the architect as a conventional plan. The free plan for instance demands that closed elements, which still are a necessity, are set back from the outer walls, as done in the Farnsworth-house. Only in this way one achieves a free space (1958).<sup>40</sup>

I never make a painting when I want to build a house (1959).<sup>41</sup>

Berlage was a man of great seriousness who would not accept anything fake and it was he who said that nothing should be built which is not clearly constructed. And Berlage did exactly that. And he did it to such an extent that his famous building in Amsterdam, The Beurs, had a medieval character without being medieval. He used brick in the way the medieval people did. The idea of a clear construction came to me there, as one of the fundamentals we should accept (1961).<sup>42</sup>

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<sup>39</sup> Mies van der Rohe, *Six Students Talk with Mies*, North Carolina State College (Spring 1952). Reported in Richard Padovan, "Machines à méditer," in *Mies van der Rohe: Architect as Educator*, eds. Rolf Achilles, Kevin Harrington, and Charlotte Myhrum (Chicago: the University of Chicago Press, 1986), 23.

<sup>40</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, "Talks with Mies van der Rohe," *L'Architecture d'aujourd'hui* 79 (September 1958):100.

<sup>41</sup> Mies van der Rohe, Interview of the BBC Third Program (1959). Reported by Peter Carter, *Mies van der Rohe at Work* (New York: The Pall Mall Press, 1974), 180.

<sup>42</sup> Peter Carter, "Mies van der Rohe: An Appreciation on the Occasion, This Month, of His 75th Birthday," *Architectural Design* 31, no.3 (Mar. 1961): 97.

You know, I learnt a great deal from Berlage and admired him very much, but he never taught me (1964).<sup>43</sup>

Right from the beginning I had had a clear idea of what to do with that pavilion. But nothing was fixed yet, it was still a bit hazy. But then when I visited the showrooms of a marble firm at Hamburg, I said: "Tell me, haven't you got something else, something really beautiful?" I thought of that free standing wall I had, and so they said: "Well, we have a big block of onyx. But that block is sold--to the North German Lloyd." They want to make big vases from it for the dining room in a new steamer. So I said: "Listen, let me see it," and they at once shouted: "No, no, no, that can't be done, for Heaven's sake you mustn't touch that marvelous piece." But I said: "Just give me a hammer, will you, and I'll show you how we used to do that at home." So reluctantly, they brought a hammer, and they were curious whether I would want to chip away a corner. But no, I hit the block hard just once right in the middle, and off came a thin slab the size of my hand. "Now go and polish it at once so that I can see it." And so we decided to use onyx. We fixed the quantities and bought the stone (1968).<sup>44</sup>

What interested me most in Berlage was his careful construction, honest to the bones. And his spiritual attitude had nothing to do with classicism, nothing to do with historic styles altogether. It was really a modern building. After Berlage, I had to fight with myself to get away from the classicism of Schinkel. And after the war, I think in 1919, I

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<sup>43</sup> Mies van der Rohe, Interview by Ronald Lewcock, "Conversation between Ronald Lewcock and Ludwig Mies van der Rohe" (1964), Manuscript. (See Appendix B).

<sup>44</sup> Mies van der Rohe, "Mies Speaks: I Do Not Design Buildings. I Develop Buildings," *Architectural Review* 145 (Dec. 1968): 451.

tried to do a triangular glass building (1968).<sup>45</sup>

#### A.4 Mies' Statements Cited in Chapter 6

I have abandoned the usual concept of enclosed rooms and striven for a series of spatial effects rather than a row of individual rooms (1924).<sup>46</sup>

Life is what matters in its entire fullness, in its spiritual and concrete interconnection (1927).<sup>47</sup>

It is not entirely useless to specifically emphasize today that the problem of the new housing is a problem of the building art, in spite of its technical and economical aspects. It is a complex problem and therefore can only be solved by creative forces rather than by calculation or organization (1927).<sup>48</sup>

Next to them [rationalization and typification], or above them, stands the spatial problem that can only be solved by creativity rather than by calculation or organization (1927).<sup>49</sup>

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<sup>45</sup> Ibid.

<sup>46</sup> Mies van der Rohe, "Lecture" (1924), Unpublished manuscript. Published by Fritz Neumeyer, 250.

<sup>47</sup> Mies van der Rohe, "On Form in Architecture" *Die Form* 2, no.2 (1927): 59. Republished by Fritz Neumeyer, 257.

<sup>48</sup> Mies van der Rohe, Foreword to *Bau and Wohnung* (Building and Housing) published by the Deutsche Werkbund (Stuttgart, 1927). Republished by Fritz Neumeyer, 259

<sup>49</sup> Mies van der Rohe, "Introductory Remarks to the Special Issue, 'Werkbundaussstellung: Die Wohnung'," *Die Form* 2, no.9 (1927): 257. Republished by Fritz Neumeyer, 261.

The building art is man's spatial dialogue with his environment and demonstrates how he asserts himself therein and how he masters it. For this reason, the building art is not merely a technical problem nor a problem of organization or economy. The building art is in reality always the spatial execution of spiritual decisions (1928).<sup>50</sup>

It must be possible to heighten consciousness and yet keep it separate from the purely intellectual. It must be possible to let go of illusions, see our existence sharply defined, and yet gain a new infinity, an infinity that springs from the spirit (1928).<sup>51</sup>

Building, where it became great, was almost always indebted to construction, and construction was almost always the conveyor of its spatial form (unknown date).<sup>52</sup>

They [the glass walls] permit a measure of freedom in spatial composition that we will not relinquish any more. Only now can we articulate space freely, open it up and connect it to the landscape (1933).<sup>53</sup>

The beautiful view was to the east; to the south the view was dull, almost disturbing. This defect would have had to be corrected by the building plan. For that reason I have enlarged the living quarters by a garden court surrounded by a wall and so locked out this

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<sup>50</sup> Mies van der Rohe, "The Preconditions of Architectural Work" (Lecture in 1928). Published by Fritz Neumeyer, 299.

<sup>51</sup> Op.cit., 301.

<sup>52</sup> Mies van der Rohe, "Lecture" (Unpublished manuscript, Unknown date). Published by Fritz Neumeyer, 325.

<sup>53</sup> Mies van der Rohe, "What Would Concrete, What Would Steel Be without Mirror Glass?" (1933), Manuscript. Published by Fritz Neumeyer, 314.



view while allowing full sunshine. Toward the river the house is entirely open and melts into the landscape. Thereby I not only entered into the situation but obtained a beautiful alternation of quiet seclusion and open spaces (1935).<sup>54</sup>

Interior sculptures enjoy an equal spatial freedom, because the open plan permits them to be seen against the surrounding hills. The architectural space, thus achieved, becomes a defining rather than a confining space. A work such as Picasso's *Guernica* has been difficult to place in the usual museum gallery. Here it can be shown to great advantage and becomes an element in space against a changing background (1943).<sup>55</sup>

Whenever technology reaches its real fulfillment,  
it transcends into architecture.

It is true that architecture depends on facts,  
but its real field of activity is in the realm  
of the significance.

I hope you will understand that architecture  
has nothing to do with the invention of forms.

It is not a playground for children, young or old.

Architecture is the real battleground of the spirit (1950).<sup>56</sup>

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<sup>54</sup> Mies van der Rohe, "The H. House, Magdeburg," *Die Schilgenossen* 14, no.6 (1935). Republished by Fritz Neumeyer (1991), 314.

<sup>55</sup> Mies van der Rohe, "Museum for a Small City," *Architectural Forum* 78, no.5 (1943): 84.

<sup>56</sup> Mies van der Rohe, "Architecture and Technology," *Arts and Architecture* 67, no.10 (1950): 30.

CNS: “Many are surprised to see that you collect Klee paintings, one finds that it doesn’t correspond to your buildings.”

MvdR: “I try to make the buildings a neutral frame where human beings and works of art may live their own life. To do this a humble attitude toward things is necessary.”

CNS: “When you consider architecture a neutral frame, which role has nature in relationship to the building?”

MvdR: “Nature should also live its own life, we should not destroy it with the colors of our houses and interiors. But we should try to bring nature, houses, and human beings together into a higher unity. When you see nature through the glass walls of the Farnsworth-house, it gets a deeper meaning than outside. More is asked for from nature, because it becomes a part of a larger whole” (1958).<sup>57</sup>

Why should not a building be symmetrical? In most of the buildings on the campus it is natural to have a staircase in each end and an auditorium or a vestibule in the middle. In this way the buildings become symmetrical if it is natural. But except for this we do not give any importance to symmetry (1958).<sup>58</sup>

We intentionally restrict ourselves to those structures which are possible at the moment and try to work them out in all details. In this way we want to create a basis for further development (1958).<sup>59</sup>

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<sup>57</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, “Talks with Mies van der Rohe,” *L’Architecture d’aujourd’hui* 79 (September 1958):100.

<sup>58</sup> Ibid.

<sup>59</sup> Ibid.

If one should invent something new every day, we would get no where. It costs nothing to invent interesting forms, but it really demands very much to work something through. I often use an example from Viollet-le-Duc in the teaching. He has shown how the three hundred years development of the gothic cathedral was first of all a working through and refinement of the same type of structure (1958).<sup>60</sup>

No, the Farnsworth house is, I think, not really understood. I was in the house from morning to evening. I did not know how colourful nature really was. But you have to be careful in the inside to use neutral colours, because you have the colours outside. These always change and I would say it is beautiful (1959).<sup>61</sup>

Yes? I would not like to live in a cubical house with a lot of small rooms. I would rather live on a bench in Hyde Park (1959).<sup>62</sup>

I think the Architects' Building is the most complete and the most refined building and the most simple building. In the other buildings there is more a practical order on a more economical level and in the Architects' Building it is a more spiritual order (1959).<sup>63</sup>

Even in our tall glass buildings, when you are in an apartment, you see the sky, and even

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<sup>60</sup> Ibid.

<sup>61</sup> Mies van der Rohe, Interview for the BBC program (1959), Reported by Peter Carter, *Mies van der Rohe at Work* (New York: The Pall Mall Press, 1974), 181.

<sup>62</sup> Ibid.

<sup>63</sup> Op.cit., 180.

the city, changing every hour (1959).<sup>64</sup>

Architecture is a language having the discipline of a grammar. Language can be used for normal day-to-day purposes as prose. And if you are very good at that you may speak a wonderful prose. And if you are really good you can be a poet (1969).<sup>65</sup>

#### **A.5 Mies' Statements Cited in Chapter 7**

One realm concerns building for life in a general sense, the other is intimately connected with specific spiritual atmospheres that we perceive as characteristic cultures (1926).<sup>66</sup>

What is decisive is only how we assert ourselves toward these givens. It is here the spiritual problems begin (1930).<sup>67</sup>

Simplicity of construction, clarity of tectonic means, and purity of material shall be the bearers of a new beauty (1933).<sup>68</sup>

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<sup>64</sup> Op.cit., 181.

<sup>65</sup> Mies van der Rohe, in "Ludwig Mies van der Rohe: 1886-1969," by Water F. Wagner, Jr., *Architectural Record* no. 146 (Sept. 1969): 9.

<sup>66</sup> Mies van der Rohe, "Lecture" (Unpublished manuscript, 1926). Published by Fritz Neumeyer, 253.

<sup>67</sup> Mies van der Rohe, "The New Time," *Die Form* 5, no.15 (1930): 406. Republished by Fritz Neumeyer, 309.

<sup>68</sup> Mies van der Rohe, "What Would Concrete, What would Steel Be without Mirror Glass?" (Manuscript, 1933). Republished by Fritz Neumeyer, 314.

Order is more than organization. Organization is purposeful. Order is meaningful, and this is what it shares with the building art (around 1950).<sup>69</sup>

We intentionally restrict ourselves to those structures which are possible at the moment and try to work them out in all details. In this way we want to create a basis for further development (1958).<sup>70</sup>

We do not like the word “design.” It means everything and nothing. Many believe they can do everything, from designing a comb to planning a railroad station--the result is that nothing is good. We are only interested in building. We would rather than “architecture” use the word “building” and the best results would belong to the “art of building” (1958).<sup>71</sup>

I want people to be able to develop their own tastes and interests unhampered by the architecture. My buildings are extremely carefully designed to be suitable for use--the most careful attention is given to this, but of course the people who use the buildings don't notice it--they would soon notice it if they were badly planned (1964).<sup>72</sup>

Building art in its simplest forms it still rooted in purpose, but it reaches through the

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<sup>69</sup> Mies van der Rohe, “Notes to Lectures” (date unknown: around 1950). Published by Fritz Neumeyer, 328.

<sup>70</sup> Mies van der Rohe, Statements collected by Christian Norberg-Schulz, “Talks with Mies van der Rohe,” *L'Architecture d'aujourd'hui* 79 (September 1958):100.

<sup>71</sup> Ibid.

<sup>72</sup> Mies van der Rohe, Interview by Ronald Lewcock, “Conversation between Ronald Lewcock and Ludwig Mies van der Rohe” (1964), Manuscript. (See Appendix B).

whole scale of value in the highest realms of spiritual being, into the sphere of pure art (1965).<sup>73</sup>

Our steel beams, they have been born straight, haven't they? It takes a great deal of effort to bend them (1968).<sup>74</sup>

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<sup>73</sup> Mies van der Rohe, "Principles for Education in the Building Art," published in Werner Blaser, *Mies van der Rohe* (1965), 52.

<sup>74</sup> Mies van der Rohe, "Mies Speaks: I Do Not Design Buildings. I Develop Buildings," *Architectural Review* 145 (Dec. 1968): 452.

**APPENDIX B**

**EXTRACTS FROM CONVERSATION BETWEEN**

**RONALD LEWCOCK AND LUDWIG MIES VAN DER ROHE**<sup>75</sup>

His office was large and rather bare--a black desk, two venetian blind windows and a number of grey metal chairs in a straight row along the wall through which I entered. Mies sat in his wheel chair like an inanimate object lined up with the chairs at the far corner of the room. He motioned me to sit close alongside him. In the conversation which followed I noticed that he had a certain resemblance to Konrad Adenauer. His face was also gracious, mellow, and empathetic to an extraordinary degree. My impression throughout was that he was quite unlike what I had expected. As he listened he sat facing out into the room, glancing across occasionally but mostly looking as though he was in intense contemplation. As he grew enthusiastic in answering he would turn, lean over my chair, and gesture with both hands.

RL: The term “neutral” is often applied to your architecture in the sense of “a neutral background to living”; it does not seem to me that this is a very suitable description.

MvdR: (Emphatically) No. I prefer to describe it as “a framework for living.” I

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<sup>75</sup> The author got permission for the attachment of the following document from Dr. Ronald Lewcock, who interviewed Mies on February 7, 1964. This document was deposited in the Avery Library at Columbia University in March, 1964.

want people to be able to develop their own tastes and interests unhampered by the architecture. My buildings are extremely carefully designed to be suitable for use-- the most careful attention is given to this, but of course the people who use the buildings don't notice it--they would soon notice it if they were badly planned.

RL: You say you want people to be able to develop their own tastes in your buildings, but in the Lake Shore Drive Apartments everybody has to have the same colour curtains.

MvdR: Of course, we had to do this for unity. In Promontory Apartments I tried to suggest that the curtains be light in colour, like those walls (white) or that radiator (cream) or the chairs (pale grey) but they put up blue and white and (he said this indignantly) green and white. In the Lake Shore Apartments the people can put whatever colour curtains they like behind; we only insist that they use our curtains on the outside. After all, we give them to them. Now that the new blocks have been built with the dark glass I wish people would hang bright curtains inside--it would be very interesting--but now they won't do it.

MvdR: I would say that the main principle of my philosophy is structure. Everything is structure. You know, the essential part of the building produces the character of the building. For economic and practical reasons in this age it is not possible to do anything else. The people in the East who copied my work a few years ago did not ever understand this principle--that is why it did not mean anything to them and they went on to something else. But it is not only America, it is widespread--only in America it is more obvious, because the problems are aggravated here. That architecture in New York; it is not architecture at



all. . . [original abbreviation] and those men who design. . . . [original abbreviation] you know. . . . [original abbreviation] they look at magazines.

RL: It has struck me as extraordinary that the enthusiasm for your work seems to have passed without most American architects grasping what you were trying to achieve. I suppose, though, that there are some of your students who are trying to further your aims.

MvdR: Yes, there are some--those I have taught and those I have not taught also. You know, I learnt a great deal from Berlarge and admired him very much, but he never taught me. Gordon Bunshaft is like this--he certainly understands what I am trying to do.

RL: So you believe that if the New York architects understood your philosophy they could make it a beautiful city without changing anything else at all?

MvdR: Yes, it would be a most beautiful city--and that does not mean that the buildings need be all alike. You know, many people have said that Seagram's is the end of the road--you can't go any further; but to me it is the only the beginning. I am sure that other people can start from there and go very far indeed.

RL: Do you believe that many architects can work independently and still make a unified whole of a city?

MvdR: A number, yes.

RL: The reason I asked that is that I was impressed with the unity of the Illinois campus. Illinois made me think that perhaps after all the only way to have unity in a group of buildings was to have only one architect.

MvdR: I said a moment ago that a number of architects could work together.

When I was given the Stuttgart exhibition--a group of houses and apartments--in 1927, I wanted only five architects to take part. But they made me have more, so we ended with fifteen. Only the original five were any good.

RL: But you gave them (the five) all adjoining sites so that it didn't matter.

MvdR: (Smile). Yes, that made a good exhibition.

RL: Yet take the case of the Berlin Hansaviertel; there were a number of good architects, and the results were terrible.

MvdR: Yes, terrible. At Stuttgart we had fifteen--when you have fifty-five architects what do you expect?

RL: But some of the architects were outstanding. How does one explain the blocks of Alva Aalto and some of the Germans?

MvdR: I don't know. . . . [original abbreviation] I have wondered. . . . [original abbreviation] perhaps they didn't care under the circumstances.

RL: I noticed in going through your current designs that there are many rooms without any natural light at all (or ventilation). For instance, the lecturer's rooms in the Chemistry Faculty building. I would have thought that this would bother you.

MvdR: When I first came to America I noticed how everybody automatically turned on the electric light when they arrived in the morning--there might even be bright sunlight streaming in (gesture at the windows). I have found that nobody worries about the absence of windows--most people do not even notice it. I do this with bathrooms and kitchens as well. We just cannot afford to do anything else with the economy of today.

RL: Yes, but in England and Scandinavia they still make it a principle to get daylight into every room.

MvdR: We all tried to do it in the twenties and thirties. I believed in it firmly too. But it was completely impractical, you cannot get a building that way. In any case no one can afford to pay for it, and it is not necessary at all.

RL: May I ask a question with the knowledge that you may prefer not to answer it? You spoke earlier of the Stuttgart exhibition. At that time you so greatly admired Le Corbusier that you gave him the choice of any site at the exhibition. Have you changed your judgment of him since?

MvdR: Oh, yes. I admired him very much. It is not possible until you were there to imagine the awe in which all European architects held Le Corbusier at that time. I was so concerned by what I saw at changes in his work that I went to the recent exhibition of his designs in San Francisco, where I studied his buildings very carefully for a few days. I found a complete lack of any knowledge of technology. It is very bad. Maybe this is because he has the mediaeval attitude to architecture--no, maybe I should better say Byzantine--Perhaps he has written so much and criticized so much.

RL: His perception in "Towards a New Architecture" is outstanding.

MvdR: Yes.

RL: But you think he is too concerned with visual aspects in his buildings?

MvdR: Yes, certainly.

RL: Would you say that looking at his work from here it seems that he is less concerned with the vital problems of the 20<sup>th</sup> Century?

MvdR: I believe so. The real problem is here, now, in the city. . . . [original abbreviation] you know, the old builders of Europe understood it. You have a town full of houses and they are all the same size. The material is the structural one--they are not ashamed of it. The poor man has a simple house, but it is the same size as all the others. The middle-class man has more money so he has some little detail for enrichment--a fine doorhandle, maybe--and the very wealthy man, he has a bow window maybe--but the house is exactly the same--it hasn't changed. They understand architecture. But we can do it today--it is simple--everything is ready. All it needs is the will to do it.

I spent hours going through the projects in Mies van der Rohe's office. Nearly all the design work is done on models--each one preceded by a single setting up drawing. (The heart of the office is a large workroom with machines and paintshop). The process of design work is as follows:

1. Block model in polystyrene.
2. 1/8" or 1/6" scale models (usually at least 2 successively--often a duplicate of a final one made for the client). These made in wood by the draughtsman, except in the case of big office blocks, when the facades are etched in sheet metal by photo-electrolysis. No perspectives are ever done. Once or twice when clients insisted on it over the past ten years the work had to be sent out to another office because no Mies-trained students are ever taught to render or draw perspectives.
3. 1/4" or 1/2" models to study detail at intermediate stage.
4. 1/2 F.S. or F.S. detailed studies in wood, possibly section of whole façade, full height.

5. F.S. studies by contractor in final materials for approval of workmanship.

Big jobs are done with another firm collaborating. Mies does designing, then hands models over to associate firm for working drawings, approval of plans by local authority, signing of contract. They then withdraw and supervision is done by Mies and specialists.

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## ILLUSTRATION CREDITS

### Lenders

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## **VITA**

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